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ELEPHANTIASIS ORIENTALIS,

AND SPECIALLY

ELEPHANTIASIS GENITALIS,

IN

BENGAL.

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ELEPHANTIASIS ORIENTALIS.

GENERAL OBSERVATIONS UPON ELEPHANTIASIS.

THE considerations which this disease involves are very widely extended, and it would not be possible to do justice to the subject in its entirety within the limits which I prescribe to myself here. The remarkable prevalence of this disease in Bengal, where its hideous deformity meets us in every village, and shocks us even, in every street of this great city, claims our fullest investigation, and best efforts for its relief. But it is chiefly in its manifestation, a very common one to be sure, as *Elephantiasis Genitalis*, that I purpose to dwell upon the general disease.

Its origin is a subject that has long engaged the minds of medical men—and in all ages. The HINDU, the GREEK and the ARABIAN writers had their own peculiar views. The latter, perhaps, studied it chiefly in Egypt, and assigned its origin to bad air, to bad diet, and to impure sexual intercourse. And whilst bad air must, we admit, claim a first place in its production; the last, in producing syphilis, is a prolific source certainly of *Elephantiasis Genitalis*.

With respect to the diet, whilst it is quite true that the disease prevails generally in rice-eating countries,—as the coasts of India, China, South America and Africa,—yet it has been seen in a child who could have had no other food than its mother's milk. We know that the inhabitant of Bengal will lose the disease if he go to Upper India, and that it will return upon him if he return to Bengal. We know also that the native of Upper India may get it if he come to Bengal, as well as the natives of other countries. But whether in these cases the diet of the Upper Provinces, unleavened wheaten bread, substituted for rice, have any influence; or *vice versâ*, rice for wheaten bread; is yet, I

believe, unascertained. It is however very desirable that it should be known; for in fatal cases which I have examined, disease of blood-making organs, as the spleen, &c., has always been found. I have also observed that disordered excretions, particularly that from the kidney, occur during rapid progress of this disease. Indeed, it is hardly conceivable that the enormous mass of albuminous material, which constitutes the bulk of the elephantoid leg, as thick as the patient's body perhaps, or the elephantoid scrotum, which may be a great deal thicker, could thus grow without spoiling other parts.

A monster tumour of this latter kind, gives to the unfortunate sufferer a whimsical resemblance to a huge wasp; so little looks the small head, and attenuated trunk, in comparison with the great bulky scrotum which trails below. Indeed, whenever the disease have long existed, and the tumors have acquired such immense bulk, the peculiar tinge of the countenance leads one to infer that *the mass of the blood is deteriorated*; and the calcareous and fatty degenerations of internal organs are then often met with. Especially is this the case in the heart, and arteries, as well as the liver and the kidneys. But whether deranged structure and function in the kidney—preventing its excreting the albuminous material from the blood,—precede the disease, or that the fatty degenerations follow the establishment of the disease, are yet important points to be ascertained. However that may be, I look upon it as certain, that a tumour of the scrotum which shall weigh, as did that operated upon by my friend DR. ESDAILE, one hundred pounds and upwards, or such as I myself removed, ninety-six pounds, cannot but exercise an evil influence upon the nutrition of the whole body; according to that law of TREVIRANUS, “that each organ of the body whilst it nourishes itself, is in the character of an excretion towards all the rest.”*

DEGENERATION OF INTERNAL ORGANS.

These considerations might, as I have said, be greatly extended, but it is not my intention to enter further into them. After long observation of this disease, chiefly in connexion with the usual operation for its cure, in a hospital almost exclusively occupied with the treatment of Elephan-

* See Lectures on Surgical Pathology, by James Paget, F. R. S., vol. 1, page 24, London, 1853.

tiasis Genitalis, an experience therefore which can fall to the lot of very few, I now find that my views of the disease are greatly changed, from what they were. I no longer regard this malady in the same light, as when first admitted to my wards under the names of "*sarcocoele*" and of "*hypertrophia scroti*." I think these terms (undoubtedly inadequate expressions,) are even calculated to mislead as to the real nature of the disease. It appears however, to me, that the readiest mode of imparting my own views, is to give [the facts themselves from which they were derived; and this I shall do for the most part in the words of intelligent students of the Medical College Hospital, careful observers of [the cases which I adduce. Too often it happens, that only through the gate of death, we can obtain adequate or accurate conceptions of living actions, in a word of the true pathology of disease: and it is to morbid anatomy that I am indebted for more just views of Elephantiasis.

It may be well to premise the deductions which will probably be suggested by the following cases:

1st.—Elephantiasis, however manifested, whether in the genitals or in the limbs, is essentially one and the same disease.

2nd.—But, if of long standing, accompanied as it must be with a periodical fever, its effects are not limited to these external and apparent changes in the limbs or in the genitals; but changes most serious as respects the life and health of the individual, will be always found in the internal organs, and very likely in the blood itself.

3rd.—The mechanical presence of syphilitic indurations, of hydrocele, and of hernia, and much more of the elephantoid tumour in an early stage, seems to drag on the constitution to a confirmed state of the disease. If so, we deduce that the small tumours should be early extirpated; that the plan of deferring to operate till they grow larger is bad practice; whilst to stop the fever, will probably stop the shedding from the blood of the albuminous material deposited externally and internally during its continuance; and lastly, that in old tumours, changes of internal organs are to be expected.

That fatty degenerations of various organs are concomitant affections with Elephantiasis, my own observations have convinced me; and, limited as they are, I deem it of practical importance to make them known. It is obvious that sudden death, which might occur after an operation, might also be set down as *caused by* the operation, or even by

the administration of chloroform, when, in fact, it was the result of the fatty degeneration of the heart. Upon this head the remarks of DR. PAGET are, I think, very valuable.

"I have spoken of fatty degeneration of the heart (he says), because it is extremely important that this condition of the heart should be recognised after death, even when no suspicion could be entertained of it during life. For it often introduces unexpected dangers into the ordinary practices of Surgery. It is, I believe, not rarely the cause of sudden death after operations. It is one of the conditions in which chloroform should be administered with more than ordinary caution.

"They who labour under it may be fit for all the ordinary events of calm and quiet life, but *they are unable to resist the storm of sickness, an accident, or an operation.*" *

CASES OF ELEPHANTIASIS.

CASE I.

Elephantiasis Genitalis, Abscess—Hernia—Gangrene—Death—Fatty degeneration of Heart, Liver, Kidneys, and Arteries.

CASE OF KAREEM SHA, age 30 years ; occupation—beggar ; residence—Mesreegunge ; race—Mahomedan ; temperament—phlegmatic ; admitted into Professor Webb's ward—4th July 1854 ; time in Hospital—16 days ; cause of death—rapid sinking.

Previous History.—The patient is a weak man of an anxious countenance. Entered the Hospital with a tumour, elephantiasis scroti, measuring from its root to the base two feet two inches in length, and four feet four inches in circumference. On asking the patient, he states that the disease is of two years' standing, and that it suddenly commenced with an attack of shivering and fever, attended with swelling and acute pain of the scrotum, (*i. e.*) the scrotum began to swell as the fever set in. This fever lasted for three or four days, during which time the swelling was great, the pain intense, and was accompanied by head-ache, restlessness and pain all over the body, especially in the joints, and occasionally by enlargement of the inguinal glands. During this time he felt an itching sensation in the scrotum, so that he used to scratch its surface so much, that he tore off the cuticle from it, and globules of serum used to ooze out from the denuded surface. At this time also he used to feel a sort of contraction and rigidity in the loins. Again, after the lapse of 15 days, the fever recurred with the same sort of uneasiness as before, and so on. The scrotum on each attack retained its great bulk till the fever subsided, di-

* See Lectures on Surgical Pathology, by James Paget, F. R. S., vol. I, page 24, London, 1853.

minishing in size day by day till the next accession of fever. The fever recurred two times in a month, and the scrotum went on increasing in size with the fever, till it has attained the present size, *i. e.* two feet two inches in length, and four feet four inches in circumference. On examining the scrotum carefully, an old omental hernia is found in the right scrotum, which is also inflamed. Besides he is found to have got enlarged spleen. About eight days after admission, a large abscess was formed in the right scrotum, and the matter was formed outside the tunica vaginalis. This abscess was opened, and eight ounces of purulent matter let out. On the next morning, or the eighth day since his admission, the scrotum measured nine inches in length, and 13 in circumference. Latterly while under treatment, he had diarrhœa and afterwards hiccup, nausea, and vomiting. On the 14th day of admission, his bowels were found irregular. The scrotal sac much enlarged and sloughed. *Pulse*—small, thin and reduced, eyes sunk—and speaks with much difficulty—and on the 16th day he died.

Treatment, locally.—Leeches to the scrotum, spirit lotion and bandage. Tinct. Iodine, compress, and bandage. Abscess opened. Tepid water injection, afterwards tepid water \mathfrak{z} xii., tinct. myrrha. \mathfrak{z} ss., solution alum \mathfrak{z} j. for injection; turpentine and resin dressing pushed in the scrotal sac, and the same dressing over it. *Internally*—Dover's powder, quinine mixture, quina. sulph. gr. ii. Ferri sulph. gr. ii., ext. opii. gr. $\frac{1}{2}$ thrice daily. Then pulv. creta co. cum opii. \mathfrak{z} ss. quin. sulph. gr. ii. thrice daily.

Post Mortem Appearances.—On opening the scalp, serous effusion is found underneath the dura mater. On opening the chest, the right lung is found to have adhered with the parieties of the chest. On cutting open the pericardium, effusion is found in it, and in the heart is seen a large mass of coagulated fibrin, which has extended into the vessels proceeding from it, and the walls of the heart had undergone fatty degeneration in its muscular tissue. On opening the abdomen, the *liver* is found unhealthy in its appearance and enlarged, having undergone fatty degeneration; adherent over the right lobe. The *gall bladder* distended with pale-looking bile. The *spleen* enlarged four times its natural size, and the capsule loaded with recent fibrinous deposits. The *kidneys* are also found to be very much enlarged, about three times their natural size. The capsules thickened, and on section the internal mass appears to be softened, and of a yellow tint, so these organs apparently presented the character of fatty degeneration. There is also seen one or two cysts in the interior, and also atheromatous depositions both within and without their vessels (arterial).

Examination of the Scrotum and its Abscess.—On cutting open the scrotum, the sac of an extensive abscess is found in its right side, which had been opened a few days ago. This abscess formed outside the tunica vaginalis—it has also broke through the mediastinum and made its way into the other half, in the lower part. In the right scrotum also an old omental hernia is found to have protruded, and adhered with the upper part of the tunica vaginalis testis. An opening, large enough

to admit the finger, existed between the scrotal sac and abdomen. Besides, the wall of the scrotum is found thick and hypertrophied, especially in the left side, where the elephantoid tissue is not sloughed off by gangrene nor broken up by the abscess.

On examining the heart, liver, kidney and spleen under the microscope, the first three are seen to have undergone fatty degeneration, but not the spleen.

(Signed) BUDDINAUTH MITTER, *Dresser*.

Cases II. and III. show fatty degeneration of the heart accompanying elephantiasis of the legs; also the metastasis of the elephantoid disease from the scrotum to the legs. And one case, quoted hereafter, shows the metastasis from the leg to the scrotum; thus proving, if the proof were needed, the identity of one with the other form of elephantiasis. Indeed the disease neither originates in lymphitis nor in phlebitis, but is formed exterior to the vessels, by nuclei which develop themselves into mixed fibro-cellular, and elastic tissue, enclosing albuminous fluid. In fact we shall see that the disease is essentially FIBROUS OUTGROWTH from albuminous blastema. And though it may sometimes arise in the disturbance of inflammation, it often does so without it. This I can truly declare that no inflammation of vessels was ever observed by me, even in the well-marked inflammatory type of disease.

Case II. is also remarkable as the first amputation through the knee joint in Calcutta. This was performed at the earnest request of the patient.

CASE II.

Elephantiasis Genitalis (venereal) Moon-fever—Metastasis to lower extremity—Amputation at the Knee-joint—Examination of diseased structure in the limb—Change in the Nerves—Death—Fatty degeneration of the Heart, Liver, &c.

CASE OF BUXOO, age 30 years; occupation—burkundauze; residence—Baraset; race—Mahomedan; admitted—8th April 1854; time of continuance—4 years.

Particular Symptoms.—States that 11 years ago, had chancre, for which he took mercury, and was profusely salivated, the chancre lasted for two months. Four years after this he had syphilitic ulcers on the dorsum of the left hand and forearm, in the affected leg and upper part of sternum. Eight years ago, according to his statement, he had hypertrophy of the right scrotal sac, attended with fever, recurring during every full moon, and subsiding after two or three days' continuance. These attacks lasted for four years, after which *the swelling of the scrotum passed off spontaneously, but was immediately followed by œdematous swelling of the right leg and foot.*

At first the swelling of the leg was regularly attended with fever, during every full moon, subsiding after two or three days' duration. At present the fever comes on at uncertain intervals, varying from one month to two, and subsides after 24 hours' duration. The swelling at first used also to increase and diminish in size at certain periods of the month. It increased, as he says, during every full moon and diminished during the interval. For the last two years, from the gradual distension of the parts most affected, the swelling began to give way at several points, and form ulcers, which healed up spontaneously; leaving cicatrices behind; and were followed by a set of fresh crops, undergoing the same process of change and healing. Some of the present ulcers are of two or three weeks' standing, while others of a month or two, the big ulcer on the dorsum of the foot is of a month's standing. Never before had recourse to any medical or surgical aid till admitted into the Medical College Hospital under Professor Allan Webb, with the following symptoms:—

Elephantoid swelling of the right leg, two inches below the knee-joint; the swelling of the leg at its greatest circumference is about 12 inches, and that of the foot across its greatest breadth, about 15 inches. The affected parts are pale and cold, the swelling is hard but pits on pressure. The leg presents numerous irregular elevations and depressions, cicatrices of healed up ulcers, and fresh ulcers. The ulcers are four or five in number; of which one, the largest, is situated on the outer side of the leg, about two inches above the ankle, surrounded by an irregular thick margin, giving exit to yellowish thin matter. The rest, situated above the preceding, are nearly healed up. There is a big ulcer occupying the dorsum of the foot. It is covered with sloughs, surrounded by a thick irregular margin, and interspersed by intervening masses of morbid tissue. The discharge from the sore is a yellowish thin matter. The ulcer extends from the inner side of the foot to about an inch to the outer side. In some parts it is superficial, at others presents deep sulci, but not communicating with the bone. The great toe is very much swollen, and presents a superficial ulcer on its dorsal aspect. Complains of pain in the affected parts, general appearance is healthy, bowels regular, appetite good, tongue moist and clean, pulse natural, sleep not uniform.

Treatment.—On admission, poultice to the big ulcer; afterwards turpentine and resin dressing and bandage. The case was now transferred to another pupil.

DINONATH GHOSE, *Dresser.*

Amputation at Knee-joint.

The operation was performed by Professor Webb in the Hospital Theatre, on the morning of the 18th April. Instruments used for the operation,—1st, catlin; 2nd, bow-saw; 3rd, drawing-knife; 4th, scissors; 5th, forceps and ligatures; 6th, needles and sutures; 7th, adhesive plaster lint and bandages. Assistants engaged in the operation according to the direction of the Surgeon, were as follows—1st assistant applied the

tourniquet over the femoral artery at the middle third of the thigh; 2nd assistant took charge of the affected limb; 3rd, administered chloroform; 4th, drew back the skin (anterior flap); 5th, secured the posterior flap, and compressed the main arterial trunk.

For convenience of description, the operation is divided into the following steps—1st, the patient was put under the influence of chloroform, he was then placed on his back, and his nates brought to the edge of the operating table. The diseased limb was then lifted up at a right angle to the trunk, so as to drain up the blood, the tourniquet was then applied over the femoral artery at the middle third of the thigh, completely stopping the pulsation of the popliteal below. The Surgeon stood on the left side of the patient. The limb was then straightened and placed in a position convenient to the Surgeon. 2nd, an incision was made from the head of the fibula obliquely downwards, to about an inch and a half below, cutting through the skin and the attachment of the biceps muscle, ending in a semi-lunar incision, the concavity of which looked upwards, and carried as far laterally as the insertions of the gracilis semi-tendinosus, semi-membranosus and internal lateral ligament of the knee-joint, which were divided through, the catlin being thrust under them. The skin was then dissected up from the subjacent parts and turned up by 4th assistant. 3rd, the tendinous insertion of the quadriceps above the patella was cut through, the limb was depressed, and the other structures, entering into the formation of the joint, were divided through, and the joint was separated. 4th, next the sharp edge of the catlin was carried horizontally through the joint, and grazing the surface of the bone about three inches downwards, cut through the posterior sound and soft parts whilst the limb was straightened. A flap was left of this sound soft part. It was sufficiently large to unite with the anterior flap. The artery was then secured by the 5th assistant. The separation of the limb was effected in 40 seconds. 5th, the condyles of the femur were sawn across at the posterior projecting point, saving the attachment of the gastrocnemius muscle. The cut surfaces were then smoothed down by the drawing knife. 6th, the principal arterial trunk was then tied, ligatures applied to two other smaller arteries. There was some hæmorrhage from some other small arteries, which were stopped by pressing a sponge over them; slight bleeding from the femur, no means adopted to stop it. 7th, the flaps were brought into contact and kept in apposition by means of five sutures. The wound was then dressed with adhesive plaster, lint and bandages, and the surface kept constantly wet. There was a moderate degree of hæmorrhage, about four or five ounces during the operation. Two hours after operation, slight oozing of blood.

Minute Examination of the Limb, by BABOO CHUNDERCOMAR DEY, Assistant Demonstrator of Anatomy.

Skin.—The epidermis is half a line thick. There is nothing peculiar in the minute structure of it. The cutis is about quarter inch thick. Its structure is normal—at least, so far as this can be determined by an examination of transverse and vertical sections of it, made with Valen-

tin's knife. Under the microscope white fibrous tissue was seen mixed with elastic fibres, and a few bundles of plain unstriped muscles. As regards its vessels and nerves, they have not been examined in consequence of the extreme difficulty of the investigation. The sub-cutaneous areolar tissue measures a little more than half an inch in thickness; and there is an increased development of fat in it. The microscope did not detect anything abnormal in the fat-cells.

The fascia superficialis is about two lines thick, and strongly adherent to the sub-cutaneous areolar tissue by a dense white structure, which is composed chiefly of white fibrous tissue. (Together these tissues, containing abundance of albuminous fluid in their meshes constitute the real elephantoid growth.)

The Muscles.—The muscles have a dirty-yellow color, and contain a much larger amount of fat than usual. On examining several specimens under the microscope, I have not been able to detect any satisfactory evidence of fatty degeneration of their fibres. I could see distinctly their characteristic transverse striæ; and it was only in a very few places that they appeared to be rather indistinct; but this indistinctness was not owing to the existence of fat-globules within the sarcolemma. I am, therefore, disposed to attribute the alteration in color, mentioned above, to an increased growth of fat in the perimysium.

The Blood-vessels.—The veins, superficial and deep, are dilated; and the former are imbedded in the dense fibrous tissue, I have described above. They are quite patent—at least so far as I have been able to trace them. All attempts at injecting them have proved fruitless, in consequence of numerous cuts in their coats; and I have not, therefore, succeeded in determining whether their valves acted efficiently during the life of the patient, or not. The posterior tibial artery is somewhat dilated, and its coats perhaps a little thickened.

The Nerves.—The posterior tibial nerve is nearly of *the size of the ordinary sciatic nerve*. Its circumference measures a little more than one-half inch. Its color is dull yellowish-white. It is surrounded by a pretty large amount of fat, which is, however, not deposited uniformly throughout its course, and has, hence, given rise to the appearance of nodes. Its neurilemma is probably a little thicker, and stronger than usual. Its ultimate microscopic structure is quite healthy. The long saphena nerve is also enlarged, and about a quarter inch in circumference.

Progress after the Operation.

On the 21st April sloughing of the upper flap, with an offensive discharge, but small in quantity. 22nd, sloughing extending, on the inner aspect, discharge increased in quantity. On removal of slough, artery distinctly seen pulsating. Tongue dry and coated with a brown fur, complains of thirst, sleeplessness. 23rd, sloughing extending, discharge

continues the same. Granulations sloughing. 24th, sloughing on the external aspect, extensive discharge of pus, tongue dry and furred, conjunctiva yellow, pain at night. On 25th the bone exposed. 26th, extensive excoriations, both on the hip and middle part of thigh. On applying the hand, an induration is felt on the external aspect, discharge very offensive, bowels purged frequently. On the 1st May, an abscess on the middle of the lateral and external aspect of thigh, four ounces of pus discharged, by puncture. Abscess situated immediately underneath the skin, extending from the trochanter major to the end of the stump, discharge very offensive. On the 4th instant, granulation very pale and flabby, discharge decreased in quantity, but very offensive, great thirst and debility, diarrhoea. *Treatment*.—Locally Turpentine and resin, dressing, bandages : died 6th May.

Post Mortem appearances.—On removing the calvarium an universal effusion of serum was found on the cerebrum between the arachnoid and pia mater, the substance of the brain was not affected by it. There was also an effusion of blood under the dura mater, between it and the arachnoid, quantity about two or three drachms. Lungs were healthy, heart undergoing fatty degeneration, right auricle contained coagulated blood, whilst the ventricle contained it in a fluid state, the left cavity empty.

(*Liver* as well as the *heart* was found under the microscope to have undergone fatty degeneration.)

Stump.—On examination the limb presented, on its outer and lateral aspect, a superficial abscess above the fascia lata extending from trochanter major to the surface of the stump ; and another deep seated posteriorly, which extended from tuberosity of ischium, to the termination of the amputated stump, its muscles were in a sloughing condition.

(Signed) HENRY DEMELLO, *Dresser*.

CASE III.

Venereal Elephantiasis Genitalis, Moon-Fever—Metastasis to the Leg—Effusion into the bursa, suppuration, sloughing, gangrene,—death. Fatty degeneration of Heart—of Arteries.—Ulceration and false membranes—Obliteration of Aorta. Fatty degeneration of Liver, Kidneys, and Testes and Enlarged Nerves.

KULLO, age 50 ; occupation—a tailor ; residence, Mirzapoor ; a Mahomedan ; disease, *Elephantiasis cruris et scroti*—admitted into Professor Webb's Ward, 2nd January, 1855.

In appearance this man is old, weak and thin, with an anxious expression of countenance. 10 years ago he had chancres which inoculated the scrotum, which became afterwards swollen and covered with itchy pustules. The sores were cured in a month; but the swelling of the scrotum remained, increasing gradually for eight years afterwards, by periodical swelling of the penis and scrotum, accompanied with fever, which attacked him usually twice a month; generally at the lunar changes. The swelling subsided by watery sweating after two or three days' continuance.

Two years ago this periodic swelling of the scrotum ceased, and the disease transferred itself to his right leg.

Present appearance.—The scrotum is now half the size of his hand, it is covered with tubercles, it has no hydroceles. The penis, unaffected at its root, is about three times the natural size elsewhere.

The right leg is affected with Elephantiasis to within two inches of the knee joint. The skin over the knee is tense and shining, and hot and painful if touched. He cannot bend his knee. He cannot sleep for the pain. It appears that the bursa outside the knee joint is inflamed. The pain is very severe and of a throbbing kind.

On the fourth day in Hospital fluctuation is distinct over the knee joint. On the fifth day the bursa was tapped, and about an ounce of seropurulent matter let out.

On the thirteenth day, suppuration was found to have occurred at the back of the knee. An incision was made and six ounces of matter let out. From six to twelve ounces of very offensive matter continued to discharge daily, the leg decreasing to the twentieth day. The cellular membrane behind the knee, and behind the leg, was all undermined, and portions came away as sloughs. Diarrhœa now set in, followed by sloughing of the skin and tendons.

He gradually sunk, and on the twenty-fifth day he died.

Post Mortem Examination.—On opening the chest, the lungs were found healthy, the heart in appearance like a lump of butter (had undergone fatty degeneration), distended with fluid blood, in no part showing any coagula of fibrine, nor in any of the vessels afterwards examined, except a very thin layer in the aorta. On the outer aspect over the right auricle, were thick flakes of fibrinous deposit of a yellowish color. A section into the right cavities, showed the muscular tissues of a yellowish brown color and softened, the valves thickened by fibrinous deposit; and fatty deposit immediately under the endocardium, around the auriculo ventricular opening. A very thin layer of fibrine in the left ventricle, the auriculo ventricular valves thickened. The arch of the aorta somewhat dilated, the descending aorta thickened with atheromatous deposit. Ulcerated towards its lower part, showing calcarious deposition, false membrane, and *an absolute obliteration of the canal of the aorta, about one inch below the celiac artery.* And from the cul-de-sac there formed in the vessel, the false membrane is turned upwards, and passes into the celiac axis; showing that the current had been reversed and the blood ran

from below upwards. A hardened mass of organised fibrine fills the arterial tube four inches before its bifurcation. But in its centre was still found an open portion of the artery, of which the calcarized inner coat and extensive ulcerations could still be traced; and seemed to indicate that nature had closed the aorta to prevent its rupture. The common iliacs traced from below upwards end each of them in a cul-de-sac at the lower end of this fibrinous mass. The whole course of the femoral artery being taken out, as also the popliteal, and examined, no obstruction was noticed. The nerves in the diseased limb had become enlarged towards their lower ends and loaded with fat.

Abdomen.—The liver was puckered up, lobulated, presenting the usual aspect of cirrhosis, weight two and a half pounds, portions had undergone fatty degeneration. Spleen covered with large patches of fibrinous deposit on its capsule, and a softened pultaceous mass enclosed within the trabeculæ. The spleen is almost three times the natural size, and weighs about eight ounces.

Pancreas hardened, *Kidneys* pale looking, with spots of congested vessels ramifying on the surface, lobular aspect lost, a section shows the papillæ loaded with fatty deposit. The left one is the largest, the palest, and most abundantly loaded with fat. Both kidneys presented numerous cysts, largest in the left, both weighed three quarters of a pound, both had undergone fatty degeneration.

Intestines are pale, loaded with fat, the bladder also covered with fat, stomach large and distended.

External Aspect.—The slough extends from lower third of right thigh to the middle of the leg, exposing the hamstring tendons. Elephantiasis of the penis and scrotum, latter hypertrophied and ulcerated at its lower part. The cavity of the tunica vaginalis of left testicle obliterated by adhesions, which have undergone fatty degeneration. The tubules of the testicle also filled with fat, tunica albuginea thickened to a quarter of an inch. Right testicle atrophied tunica vaginalis partially adherent, and visceral layer has underneath it a large deposition of fat, no thickening of the tunica albuginea exists.

Deductions.—The large ulcerated surface at the lower part of the aorta had been covered with layers of false membrane, which, washed off by the currents of the blood, had obstructed the aorta below; becoming organised, the vessel was obliterated. This with the fatty degeneration of the heart, had so interfered with the circulation of the blood in the lower extremities, as to cause sloughing phagedæna in the leg previously weakened by Elephantiasis.

CASE IV.

Elephantiasis Genitalis cruris et brachii—Moon-fever—Operation, removal of calcarized Tunica Vaginalis—Compression of extremities—Recovery.

CASE OF RAM NATH BANERJEE; age—30 years; occupation—Priest; residence—Beerbhoom; race—Hindu (Brahmin;) tempera-

ment—bilious ; admitted—9th July, 1854 ; time of continuance—6 years ; time in hospital—3 months and 6 days ; cause of discharge—cure ; discharged—15th October, 1854.

Previous History.—Admitted into Dr. Webb's ward on Sunday the 9th instant, with the following symptoms :—Elephantiasis of the scrotum, left leg and right forearm. About six years ago, he was attacked with moon-fever ; the paroxysm coming on twice a month in the change of the moon. In the first instance, he used to have swelling in the groin from enlargement of the glands ; followed by shivering fever and swelling of the leg and foot. After three days it used to go off with sweating, but leaving the limb increasingly swelled after each attack. The disease commenced in the scrotum about a year after the attack in the leg, it set in with pain in the inguinal glands, which was very severe, accompanied with retraction of the testicles. This was followed by fever, and swelling, and relaxation of the scrotum ; the swelling of the scrotum increasing at each attack. In the early attacks, the disease relieved itself by sweating of the scrotum ; latterly such relief has not occurred. About three years ago the disease attacked the forearm. It commenced with pain in the axilla, followed by inflammation and swelling of the forearm, the swelling becoming permanent, and increasing at each attack. Sometimes the scrotum, leg, and forearm were attacked at the same time. About eight months previous to the swelling of the left forearm, he had chancre, for which he took mercury, pushed to salivation. About a month after this, syphilitic ulcers broke out on the sound, and also on the affected limb, the ulcers healed, leaving cicatrices behind, seen now.

Present Symptoms.—The left leg and foot swelled twice the size of its fellow, the skin over the part smooth, tense and adherent. The leg measuring at its greatest circumference 16 inches ; the foot across its breadth 8 inches. The right forearm measuring at its greatest circumference 10 inches. The scrotum enlarged, and globular in shape. It is hard and elastic ; the skin is of a dark color, thick and corrugated, and adherent to the subjacent part ; the raphe is thickened and distinctly marked. On pressing the scrotum with the hands, the left testicle appears larger than the right. The penis is imbedded in the tumour. The tumour measuring at its circumference 20 inches, and in length 16 inches. The general appearance of the patient healthy and vigorous, no pain, bowels confined, appetite good, sleeps well, tongue clean and pulse natural.

Operation.—The patient when free from fever and his legs and arms when much reduced in size by treatment, was very anxious for the removal of his elephantoid scrotum ; he was operated on by Professor Allan Webb, on Saturday the 5th August, 1854, at 8½ A. M., in the following manner :—The patient, having been made insensible by chloroform, was placed recumbent on a hospital cot, as near to the edge as possible, and his legs were placed extended on two stools on each side, on the same level with the body. Then the surgeon sitting in front, introduced the fore-finger of his left hand in the opening which gives exit to the urine, and a bistoury was passed, guided by the finger of his left hand, and by one single stroke upwards, the part was

divided and the penis exposed. Having cleared the penis from the surrounding parts, it was raised by an assistant and there secured. Next the testicles were dissected out from the tumour by some longitudinal incisions made on each side: when the testicles were exposed, they were raised by assistants, placed on each side, and held up firmly. At last the whole of the tumour was removed by one sweep of a long catlin. The testicles were found enlarged from previous hydrocele, and the water was let out by two punctures. A portion of the tunica vaginalis of the left testicle was thickened and calcarious, and consequently it was removed. The operation was performed within five minutes, and with little loss of blood. The bleeding vessels were soon secured by ligatures. The part was dressed with lint soaked in sweet oil. Strapping of soap plaster—tow teased applied, and T bandage over it. After the operation, patient's pulse continued firm and regular. Slept soundly with very little pain,—had one or two attacks of fever.

Treatment.—Purgatives, quinine dose gr. v. internally, tinct. iodine application, and bandage to the leg and arm. After the operation the dressing was not changed for two days, then turpentine and resin dressing. For the flatulence, ol. ricini. ℥j, tinct. opii. ℥. x., tinct. zingiber 3ss., aqua. menth. pip. ℥j., quinine mixture, three times a day. On the 25th, water dressing with caustic application, occasionally. For the erection of penis, camphor gr. ij., extr. hyosciami gr. v. j. at night. Subsequently. Hydrodate of potass mixture. *Diet.*—Low, middle, full. *Effect.*—Nearly well when he left the hospital.

RUSSICK C. PAUL, *Dresser.*

Of Elephantiasis Genitalis, coincident with the same disease in the legs or arms, I have met many instances, best understood in their general aspect from the drawings. But it would only weary the reader to adduce more cases. Those I have given above may suffice to prove the concurrence of extensive fatty degenerations of internal organs with the external manifestation of Elephantiasis, and to establish the three propositions recorded at page 3.

I now proceed to the main subject of this paper, and the cases which follow will also throw light upon the general disease.

ELEPHANTIASIS GENITALIS,

Both from its common occurrence in Bengal, and from the miseries which it entails, as well as from these grave degeneracies of important internal organs which it apparently induces, occupies a formidable position in general Indian Pathology.

Elephantiasis Genitalis in Men.—The usual tumour in men is seen as a large pyriform mass representing the scrotum, about the size of the head, generally smooth, with the raphé of the scrotum still discernible, generally in the middle line, but occasionally on one side. The penis is entirely hidden in the tumour which has grown by periodical additions after moon-fever. The large monster tumours equal or nearly so in size to the man's trunk, are now uncommon in Calcutta. They have mostly fallen under the knife, for the graduates of our College, among whom BABOO PERMANAND SETT claims especial mention, are now some of them excellent operators. And well it is for the patients that they seek relief before the great duration of the disease have occasioned fatty degenerations, or the great size of the tumours placed their life in jeopardy when they at length come to the knife.

In women the simple tumour is generally an enlargement of one labium; sometimes both of the labia majora are affected. The tumour is smooth, may be half the size of the head, the growth of three or four years; and commonly unaccompanied in its increase by the moon fever. So constant is this freedom from fever, that it may perhaps be dependent upon the catamenial evacuation; which generally continues even in cases when the tumour is twice the size of the woman's head. It is equally common to find that these tumours in women have grown without inflammation also; of this I shall speak hereafter. The tumours are found more commonly ulcerated in women than in men; and give, by their weight and traction, more pain, upon parts, more sensitive than in the other sex.

Whilst the native of Bengal is undoubtedly the most frequent victim, it is nevertheless found in Europeans, East Indians, Armenians, Jews and Portuguese. It is met with in both sexes, and at all ages. In 1852, a Bengalee boy presented himself at the Mesmeric Hospital with Elephantiasis of both penis and scrotum. The boy was one year old. The parents stated that the disease commenced when the child was five months' old only. He suffered from the fever at the full moon, or at the new moon. This last year, 1854, an East Indian lad of 14, was for some time under my care in the College Hospital, for the cure of this disease. A Bengalee girl had a tumour of this kind which began about the age of 17, it was about twice the size of her head; it involved the right labium pudendi. I removed it at the new College Hospital in 1853; it was, indeed, the first

operation there. This last year I operated upon two men upwards of 60 years' old, one of the tumours was of the largest kind, measuring fifty-four inches in circumference.

The disease, therefore, may be said to be very generally prevalent, as respects race, sex and age. Of the misery it entails, the surgeon can well judge, who knows how common it is for genital diseases, even for those considered trifling, such as varicocele of the cord, to produce fearful despondency. A respectable East Indian who had suffered four years from one of these tumours, which I removed, assured me that he had often been tempted to suicide. The poor boy of 14 was often found in tears, as he watched his organs gradually lost to sight, and involved in the usual tumour. Nor is it alone mental distress—bodily agony is a not unusual accompaniment, especially in the commencement of the disease.

In 1853 I operated upon a very small tumour of this kind in a writer of the Surveyor General's office; the access of pain and swelling was so sudden and so intense, that the poor man used to roll upon the ground, and sweat with agony. He declared the pain of its amputation nothing compared to it. Moreover, from the mere bulk of monster tumours, when a man sits down, he is fairly anchored! when he lays down he is moored! He can neither get up, nor turn over.

In the case of one of these large tumours, 96 pounds weight, which I removed in 1852, two servants attended upon the man, a high caste Bramin, to move the tumour with a sheet, and it was managed during the operation by a pully.

In the case of a native woman at Patna, the tumour used to trail upon the ground. She used to push it before her, and then get up to it. It weighed 25 pounds, and was removed by my friend DR. MACKINNON, who related to me these particulars of the case.

Elephantiasis is rarely hereditary. It may be stationary for years in a cold climate, and returns with the return of the patient to Bengal. Natives of Upper India get it in Bengal. Natives of Bengal lose it in the Upper Provinces. In the case of MODOOSODEN MOITRY, during twenty years that he remained at Agra, (serving as writer in the Assay Office,) the disease remained stationary. Last year he returned to Calcutta, and after a few months, had repeated returns of the fever, with swelling and inflammation of the scrotum. Much against his will, he was obliged to return to the Upper Provinces again. This man's father had Elephantiasis of both scrotum and legs.

VARIETIES OF ELEPHANTIASIS GENITALIS.

It appears to me that there are two well-marked varieties of this disease. The one has for its determining cause a peculiar intermitting fever, which occurring generally twice in the month, and at the lunar changes, is called by the Natives "moon-fever." The other variety has for its origin the syphilitic poison, making its appearance at a time varying from two months to two years after infection.

The first, or *simple Genital Elephantiasis*, generally invades the scrotum first, in men; and the great labia, in women. The second, or *venereal* variety, generally begins in the prepuce in men; and the nymphæ in women. The tumour of simple Elephantiasis Genitalis is commonly smooth, the venereal variety is generally tuberculated in its outer aspect. The advent of the simple variety is often ushered in with considerable fever, pain and swelling, the venereal variety is slow, chronic, and more free from pain and fever. In the advanced stages, when the tumours have acquired great size, they appear to increase alike *without pain or fever*, by simple growth, or increase of their proper substance.

NATURE OF THE TUMOUR—MICROSCOPICAL APPEARANCES.

Its substance, in both varieties, consists of mixed fibro-cellular and elastic tissue, which is tough and most condensed in the oldest or circumferential part of the tumour, whilst the softest and latest additions appear to take place nearest to the trunk, unless one portion arising in cells another in nuclei, account for difference in density. This cutaneous out-growth begins from the exudation of a common albuminous product very like white of egg,; which makes the cellular tissue œdematous, and usually organizes itself into nuclei, which afterwards become fibres, at other times after fever the fibres originate in nucleated cells.

DR. SKINNER, Surgeon to the Governor General's Body Guard, has very kindly examined both varieties, which are essentially the same structure. The following is his description, and to this he has added a most characteristic sketch of its minute structure:

"It most probably has its origin in an inflammation of the cellular tissue, into whose stretched and enlarged areolæ a fluid is poured out capable of speedy organisation. The part never again seems to return to its former dimensions, in consequence of no absorption taking place in this lowly organised new structure, hence that firm, tough and brawny

character which a section of the older portion of the disease exhibits.

“The older portion of the tumour manifests under the microscope nothing but yellow and white fibrous tissue; the latter being very abundant.

“The younger part shows the same thing. Here are also to be seen white fibrous tissue in many stages of development, from the simple cell to the formation of fibre-nuclei of this tissue in excessive abundance; of various shapes, round, oval, and lengthened out, containing numerous granules or nucleoli. Those cells which are very much attenuated and drawn out, have lost their nucleoli, and show only a bright interior.

“The fluid, which is very abundant in the meshes of the young or softer part of the tumour, contains a few blood and colorless corpuscles, and is exceedingly albuminous.”

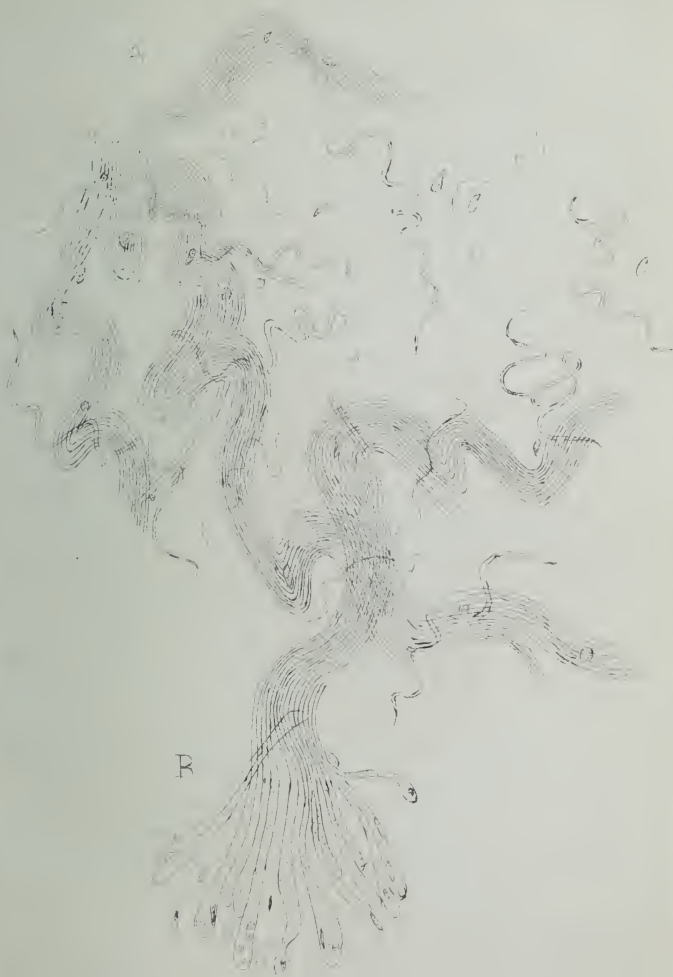
My observation of some hundreds of these tumours agrees with DR. PAGET's description. “They consist mainly of overgrowing fibro-cellular tissue, which mingled with elastic tissue, and with more or less fat, imitates in general structure, the outer compact layer of the cutis. Their tissue is always closely woven, very tough, and elastic. In some cases it is compressible and succulent, as if anasarcaous, and it yields, on section, a large quantity of serous-looking fluid. In others, it is much denser, interlaced with strong, shining bands, like those of a fascia. In others, it is meshed with intervening lobes of fat; and in others, is uniformly solid and glistening, yellowish, or with an ochre tinge, and like udder. The minute textures are, however, I believe, essentially the same among these diversities of general aspect; they are, in various proportions, the usual textures of the cutis and subcutaneous tissue, excepting (so far at least as present observation extends) the smooth muscular fibres.”
Lecture on Surgical Pathology Vol. II. p. 105.

I examined with the microscope three of these tumours, which I removed on the same morning in the Mesmeric Hospital in 1842, immediately after their amputation; and whilst they were yet living and rolling under the action of the muscular fibres. The great mass of the tumour is formed by increase to the subdartoic tissue. Its cells containing sometimes crystals of margarine, and always abundance of albumen—its envelope hypertrophied skin and dartos. I had never then seen what was pointed out to me by my friend and colleague PROFESSOR MACNAMARA, namely, that smooth unstriped muscular fibres are also found in these tumours; *a fact unknown as we have seen before.*

(Plate I.)

ELEPHANTIASIS GENITALIS,

Microscopical Appearances of Tissue composing Tumours.



A. *Fully formed white fibrous tissue.*

B. *The same tissue developing.*

C. *Yellow fibrous tissue.*

The nuclei are the nuclei of white fibrous tissue.

But on various occasions as well as that I now allude to, I found the tumours contract at the point irritated, upon pricking the white substance. This is now fully explained as museular fibres are found in this substance.

PROFESSOR MACNAMARA examined many specimens most minutely of both the venereal and simple variety. His description is very characteristic and is here added. "The outer portion of the tumour immediately under the skin was very dense, and fibrous; of a glistening white color, but became less and less compact internally, till in its central portion it presented a semifluid gelatinous mass. Examined with the microscope the dense external tissue presented all the characters of the true cutis; but more closely woven, and containing a more than natural predominance of the white fibrous element. The interspaces between the bands of tissue became larger towards the centre of the tumour, and many newly formed fibres presented themselves. The cells from which they had been developed were still plainly discernible, as granular bulgings in the direction of the length of the fibre.

"The semi-fluid tissue clearly exemplified the mode of growth of these tumours. It consisted principally of a densely albuminous fluid, exactly resembling in external appearance the albumen of an egg; and, like it, coagulable by heat to a compact white mass. In this were to be seen fibres in all stages of their growth—cells still preserving their original shape,—others becoming pointed at their extremities, and about to lengthen into fibres; and fibres from neighbouring cells connecting themselves together.

"Blood-vessels ramified through the mass—groups of fat globules were here and there scattered through the tumour."

In one case I removed the tumour six days after an attack of moon-fever. Here Dr. MACNAMARA observed exudation cells nucleated cells in great abundance, changing into fibres, immediately under the skin. (See CASE VII. p. 30.)

I have never seen in these tumours any fibrinous deposits in the veins—any indication of phlebitis or lymphitis. In the excellent paper of my friend Dr. WISE upon this disease, he seems to have regarded inflammation of the veins as the chief cause of the malady *generally*, as well as of the disease in the leg. He says "that Elephantiasis is produced by an inflammation of veins."*

* Transactions of the Medical and Physical Society of Calcutta, vol. iii., part 1st, page 178, Calcutta, 1834.

Inflammation of the skin—exudation of plasma and nucleated cells developed into fibres—takes place no doubt. But the following explanation from DR. HANDFIELD JONES on fibroid growths, defines the sense in which the term inflammation should be employed here in speaking of old cases.

“Now it seems to us to be true, in a great majority of cases, that as we depart from the type—acute sthenic inflammation—and descend to the lower grades, the distinctive features of the process become gradually effaced, so that at length we have to do no longer with morbid action the same in nature though slower in course, but with one which is materially different in its principal character.”

“Acute inflammation, as it declines, may thus pass into a mere passive congestion, or into a flux from a mucous surface, or into a hypertrophy of a tissue. Now, we contend that these conditions, when typical, are no longer inflammations—the characters of inflammation have faded away and are replaced by others. They may have had their origin in inflammation, or they may not, but they are processes substantially different from it. The one we are especially concerned with is hypertrophy, employing the term for the present not in its exact sense. This hypertrophy, causing the increase and thickening of fibrous tissues, goes on and on, as a substantive independent process totally unassociated with any trace of inflammation, even though it may by possibility have originated in it.”*

ELEPHANTIASIS GENITALIS—EFFECTS.

It seems to me probable that in many instances some predisposition is given to this disease by the licentious practices of Bengalees from their earliest years, which cannot but exhaust the nervous energy of the genital organs; yet, that climate producing what is called moon-fever is the most frequent exciting cause of all—but both these act by leaving the parts weak. Other causes are more obviously proximate and exciting when the diathesis is formed, they determine the locality. 1st, a predisposition formed by the œdema after inflammation; 2nd by the indurations of venereal action; 3rd the thickening of tissues after falls or bruises; 4th the mechanical pressure of hernia; or 5th of hydrocele. Excess of nutritive action is thrown to these parts, and the tumour grows. It is important to know that in men the scrotal tumour grows sometimes to great size when there has never been any pain or inflammatory fever

* Medico-Chirurgical Review No. 28, October, 1854, page 345.

at all. Tumours of the labia in women almost always *thus grow*. At other times the manner of action is in the first instance only inflammatory, or at the onset of the disease. This appearance of inflammation, *i. e.* pain and swelling, is perhaps only caused by distention of the skin, and tension of its nerves, like the sudden influx of milk secretion to the breast. Some cases which I have observed in hospital have even in the access of swelling little or no pain, but the fine cellular tissue under the dartos is rapidly distended with albumen. The skin is thickened *without*, the serous sac *within*. The testicle itself is sometimes implicated. The infiltrated skin may be relieved by sweating, the albuminous effusion partly absorbed, but the hydrocele remains, and some thickening of the scrotum. Successive effusions into the cellular membrane enormously increase this thickness—whilst absorption and cutaneous transpiration become less and less. The tumour grows now by regular additions of its proper substances—partly from the circumference by fibre cells after inflammation, partly by fibre nuclei from the centre. These become developed by a process of *growth* only, into mixed fibro-cellular and elastic tissue, forming that mass of elastic, whitish-looking blubber, becoming more and more condensed upon its periphery, which constitutes its elephantoid bulk, which is now in fact a true cutaneous out-growth. A section of a tumour three feet long would show the hydroceles dragging down the testicles one foot, or sometimes as far as the knee, and the rest of the tumour of greater or less fibroid consistence, enclosed in hypertrophied skin and dartos, these last together being about one quarter of an inch thick.

CONDITION OF TESTICLES.

Of the testicles, we may observe them in young subjects but little altered. Or we may see them atrophied, or calcarized; lumps like bone—large as the finger end, developed in their substance. Or the calcarization limited to the envelopes; and the tunica vaginalis as thick, as large, and as hard as the shell of an ostrich egg. Or the tunics and the testis itself, even the very tubules loaded with the fat globules, having undergone the same fatty degeneration as other organs. I never saw any malignant disease in them. But the following cases illustrate the state of these organs in Elephantiasis.

CASE V.

Elephantiasis simple of Scrotum and of the Leg—alternating. Transudation of albuminous matter from the Scrotum.—Usual operation for removal of tumour—sloughing phagadema—Autopsy, Gangrene of Lung, microscopic examination of Viscera—Fatty Degenerations in Heart, Liver, Kidneys and Testes.

CASE OF HURYDOSS—Hindu; age—40; residence—Hooghly; admitted—19th December, 1854, for Elephantiasis—15 years' standing. In Hospital 51 days; number of the bed 110; operated—22nd December; died—2nd of February, 1855.

History.—Never had syphilis, but about 15 years ago, when he was in his 25th year, he had an attack of fever; with severe shivering, swelling of the glands of the left groin, followed by enlargement of the left side of the scrotum, which was red and painful. The fever lasted three days; left him after free perspiration with the scrotum enlarged.

Four months afterwards the same kind of fever attacked him, but the swelling affected the glands of the right groin, and was followed by swelling of the right foot and leg. After three days this fever left, after free perspiration, but his right foot and leg were enlarged. Six years after this, the right scrotum began to swell after a similar attack of fever. This fever recurred now twice or thrice in a month, preceded as usual by shivering, sometimes followed by the enlargement of the scrotum, at other times by swelling of the right leg and foot. The moon did not influence the attack of fever. By these repeated feverish attacks, his scrotum attained to half its size in 10 years from the first onset. Patient says that, after each attack of fever during a period of four years, the scrotum would *transude a quantity of white ropy looking matter*, which very much reduced its bulk; so that little permanent increase took place. But about 10 months ago, this natural transudation of the scrotum being suddenly checked, the tumour rapidly increased, and became doubled in size; and the fever also increased in duration, in intensity and in frequency. For the first five months it recurred five or six times a month. For the last five months there had been no fever at all. The manner of transudation he says is, that during the paroxysms of the fever minute vesicles, about the size of pins' heads, appear. They are scattered all over the surface of the tumified scrotum. They become more prominent and distended with serum after the fever subsides, and break readily, and discharge their contents after the slightest pressure, even that of his clothes.

Present appearance.—Is a healthy, but very old-looking man, thin, and has an alarmed expression. Functions natural; has a soft weak pulse. The tumour is about thrice the size of his head, smooth on the surface, longer on the left than on the right side. An hydrocele can be felt on the left side in the middle anteriorly. An umbilical depression marks the entrance of the prepuce. The tumour measures 33 inches round, and reaches two-thirds down the thigh when he stands, is very heavy, and is widely and broadly attached at the neck.

Operation.—Two days after admission the tumour was removed. PROFESSOR WEBB commenced the operation by making a longitudinal incision from the prepuce upward, as far as the root of the penis. Then two transverse incisions in each side from this point; preserving the spermatic cords. He next dissected up the penis from below, and gave it into the hand of an assistant. *This comprises the first step of the operation.*

2nd Step.—Was to take out the right testicle: this was done by making a deep incision perpendicularly from above downward, which at once opened the tunica vaginalis, and a large quantity of serum flowed out. Next he dissected off the testicle below, together with the tunica vaginalis, which was very much thickened and hardened, and the spermatic cord lengthened. In the same way the left testicle was taken out, and when laid on his thigh, it reached almost to the knee.

3rd Step.—To remove the tumour. For this the tumour was drawn forward, and its perineal attachment severed at once by Liston's long catlin.

The operation finished within two minutes and a half.

4th Step.—To tie arteries and dress the wound. About eight ligatures were applied over the bleeding vessels. The testicles were placed upon a level with the penis. The wound was dressed with lint dipped in oil, and supported by pads of tow; gutta-percha and bandage over all. Landanum draught at bed time.

The day following he was found to have slept well after half a drachm of laudanum. Had no fever—no hæmorrhage—a good appetite—passed no urine till next morning.

6th Day since admission.—The bowels moved first time, since the operation, by a dose of oil, and there was more discharge from the wound.

7th Day.—Moderate discharge now set in; this being the fourth day from the day of operation. Testicles and cords adherent, surface of the wound covered here and there with red granulations. Some sloughy membrane removed. The wound was dressed with resin cerate; the first dressing since the operation. On the 8th day, free purulent discharge. The wound covered with healthy granulations. Both testicles adherent, cords greatly contracted, pulse soft and feeble, appetite good.

10th Day—copious discharge, lint dressing.

14th Day—wound granulating nicely. Continued improving daily until the 23rd day, which is thus reported.—“Had two stools, which were slimy, passed with some griping pain in the abdomen. Granulations are much congested, slept little, pulse soft and weak. Wound to be washed with sugar of lead lotion, to which half a drachm of laudanum is added. One scruple of compound chalk power with opium after every second stool.”

Diarrhœa and dysentry continued to harass this poor man until the 30th day, when the healing process began to degenerate from day to day. The wound is reported first as “weak,” then “glazy in appearance,”

then stationary, for a few days, then granulations are reported as of a dark red color, then pale or white, till on the 40th day, it is reported that small dark-looking sloughs were removed from the surface of the wound. And whilst the diarrhœa continues, the tongue is dry, sleep is disturbed, and cough is for the first time complained of. On the 41st day it is thus reported—"Wound getting on worse, adhesion of the left testicle entirely separated from below : surface black": no appetite : pulse exceedingly feeble : tongue dry like parchment. Had two stools last night. He began to get worse and worse daily, and died on the 2nd February, 1855, the 45th day, from his admission.

Post Mortem Examination, held a few hours after Death.

External appearances.—The granulations have sloughed off from the testis and penis, leaving a large sloughing sore. The adhesion, all destroyed, excepting of the right testis. Elephantiasis of the right leg: skin covered with horny looking scabs, very much shrivelled. The general appearances of the body emaciated.

Abdomen.—The liver pale, spotted with yellow patches, apparently degeneration of fat. The intestines attenuated and pale. *Spleen* enlarged about twice its natural size ; its capsule thickened by deposition of lymph. The *left Kidney* presents an arborescent aspect, a considerable quantity of fat about the pelvis and calices. *Right Kidney* more congested and of a darker color; its interior more fatty than the other.

Chest.—The right pleural cavity contained about a pint of sero-purulent effusion. The costal and pulmonary pleuræ streaked with flaky lymph.

The *right Lung* adherent over the diaphragm, anteriorly healthy in appearance. On examining it on its posterior aspect, a gangrenous mass, about the size of an orange, full of sanious pus was found. In the centre of this mass, a portion of pleura, three inches long and two inches broad, was observed surrounded by a line of demarkation ; but having apparently no communication with the sero-purulent effusion before-mentioned. The left lung both externally and internally perfectly healthy.

Heart—right side—a section of the walls of the heart of a pale brown color and having a large accumulation of fat over it. Its substance soft and flabby. It has a pale aspect internally. The aorta covered with etheromatous deposits.

Head.—On opening the cavity of the cranium, the dura mater and meninges appeared pale and anæmic. The brain substance was of natural firmness and consistence. Ventricles contained a small quantity of serum.

The epithelium of the kidneys had undergone fatty degeneration.

(Plate II.)

ELEPHANTIASIS GENITALIS,

Organic Changes of Testis.

Fig. 1.

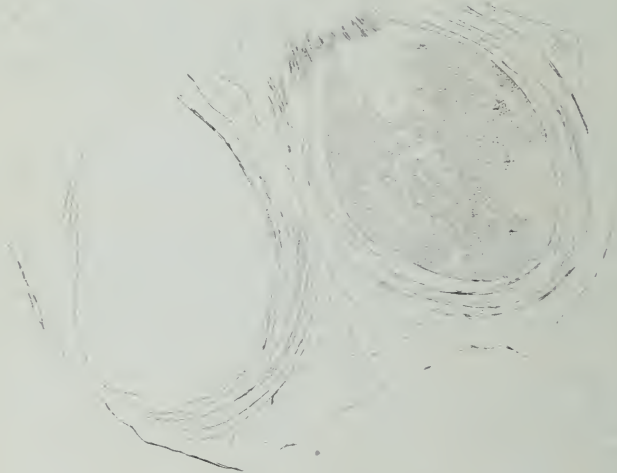
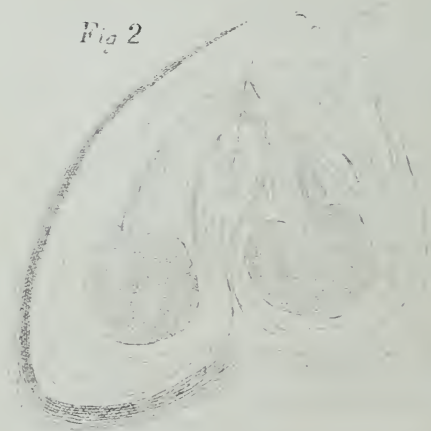


Fig 2



- Fig 1. Section of Testicle, affected with fatty degeneration, natural size, showing
 Septa of Elephantoid tissue.
 Lobules degenerated by fatty deposit.*
- Fig. 2. Section of Testicle - showing
 Tunica Albuginea, $\frac{1}{4}$ inch thick.
 Atrophy and fatty degeneration of lobules.
 Vas deferens obliterated.*

On examining the diseased right limb, the posterior tibial nerve was found surrounded by an accumulation of fat around the neurolemma, and of a dull appearance as compared with the same nerve of the opposite side. The veins of the diseased limb, as well as of the opposite side, were patent and quite healthy.

The heart had undergone fatty degeneration. The sarcous tissue of the right ventricle was almost completely replaced by fat, that of the left ventricle less so. The cells of the liver were loaded with fat.—(From notes by MEER USHRUFFULLY, Dresser.)

FATTY DEGENERATION OF TESTES &c. Observed by PROFESSOR MACNAMARA in this Case.

In the Posterior tibial nerve there was no true fatty degeneration, no replacement of its essential elements by fat—but much adipose tissue had accumulated between the tubules—hence the greatly increased thickness of the nerve.

Testes—were somewhat smaller than natural. Each testicle was surrounded by a growth of dense fibrous tissue, similar in structure to the tunica albuginea, into which it merged. Through this the vas deferens, and vessels passed compressed by it—the canal of the duct rendered impervious by the compression. Section of the testicle presented the mottled, brown, lobular substance, through which white patches were irregularly distributed, taking, however, the general direction of the inter-lobular septa.

Microscopic examination.—The tubes were many of them filled with fat, either contained in cells, or distributed as detached globules through the tube. Some of the tubes were so gorged with oil as to appear black under the microscope. No trace of seminal particles could be discovered.*

* The following observation is the nearest approach to this condition that I have met with :

We have had, through the kindness of Mr. Curling, the opportunity of examining a portion of a *testis*, which had been removed on account of hæmatocele. There was manifest evidence of inflammatory effusion in the tunica vaginalis, and in the surrounding integument. The cut surface of the testis was of a whitish color, and imperfectly lobulated aspect: and on a minute inspection, opaque whitish streaks were visible to the naked eye, coursing through a translucent greyish mass. The size of the organ was not apparently much increased. The white streaks were convoluted tubes filled with a very fatty epithelium; they were imbedded in induration matter, consisting

"The inter-tubular white patches were fibrous tissue, Treated with acetic acid, a smaller proportion of the elastic tissue appeared together with many cells, nuclei, and freshly-formed fibres. A considerable quantity of fat was scattered amongst the fibres. The inter-lobular growth had indeed all the characters of that external to the gland."

The following is the only case of Varicocele that I have met with in connection with Elephantiasis; indeed it is very uncommon to find natives affected with it. One large venous varicose aneurism of nearly the whole scrotum seemed to arise in the Elephantiasis diathesis. With these exceptions, as above stated, I never have seen any disease of veins.

CASE VI.

The Elephantoid Tumour partially excised—superficial abdominal veins greatly enlarged, and varicose. Operation, amputation of the scrotum,—enormous Varicocele of the cords,—removal of the left testis,—Fever, Delirium, and Death three weeks after operation.

Autopsy,—obliteration of the ascending Vena Cava,—Fatty Degeneration of Heart,—Cirrhosis and Fatty Degeneration of the Liver,—Vena Azygos as large as the Cava,—atrophy of both Testicles.

CASE OF RAM MOHUN DOSS.—Age—40; residence—Burdwan occupation—khasaree;* caste—Hindu; disease—elephantiasis genitalis; duration—seven years; date of operation—23rd February, 1855; died—13th March, 1855.

of fibroid substance containing extremely numerous nuclei or small cell particles. In this case it is clear that inflammatory action in the vicinity had been the cause of the intertubular exudation in the substance of the testis. This exudation, however, was so far organized, had increased to such an extent, pushing the tubes widely apart from each other, and appeared on the whole so decidedly in a condition of growth, while at the same time there was no appearance of hyperæmia in or about it, that we cannot look upon it as simply and merely an inflammatory result. There seems to us sufficient evidence that there was more at work than mere inflammatory action, that the exudation was in a condition of growth and development, acting indeed much in the same way as the blastema of a new growth. Had it been left to itself, it might afterwards have retrograded, but it was clear to our examination that it was in a very different state from the exudation of simple inflammation, which usually tends to degeneration and absorption, or to change into cicatrix tissue.—*Medico-Chirurgical Review*, No. 28, for October, 1854, page 330-31.

* Coppersmith.

He stated on admission into PROFESSOR WEBB'S ward, that he never had syphilis, and his health had been good till he was thirty years old, when he had hydrocele of the left side, ushered in by an attack of fever. The fever continued to recur twice a month, at the lunar changes, accompanied with pain in the scrotum and increase of its bulk, so that in two years it was as large as his head. A village barber cut off the most depending part of the scrotum, and in so doing let out a large quantity of fluid from its left side. There was great hæmorrhage, but the scrotum shrunk to the size of an orange, and the wound had all healed in two months. It continued in this state for two years, and for two years he was free from fever; but then the moon-fever again recurred. The scrotum rapidly enlarged, both sides increasing equally, attended with enlargement of the superficial veins of the abdomen, which are now tortuous and nodulated, extending from both groins over the front of the abdomen and chest.

The general appearance of the patient is that of a large and robust man. Dusky yellow tinge is seen about the conjunctiva, and the inside of the lids is very pale. Patient not much emaciated, but his movements are slow, and difficult, in consequence of the great weight of the tumour, (about 40 lbs.) Tumour is of great size also, measuring 40 inches in circumference, and about the same in the other direction. It had a singular appearance, from the end of it being truncated, and the scar covered with whitish-looking skin, (the size of two hands spread out,) contrasting with the dark smooth skin, like a great patch of leprosy. The tumour was of very firm solid consistence, and no hydroceles could be detected.

The man expressed great anxiety for its removal, and his bowels having been cleared out, and a few days of rest allowed after his journey, the tumour was removed in the Hospital theatre on the morning of the 23rd February, 1855.

Operation.

The operation was performed in the usual manner. But after draining the tumour, and exposing the dorsum of the penis, by a cut upwards, PROFESSOR WEBB made two transverse cuts over each of the cords, and with the view of preventing the hæmorrhage which might be expected from the varicose veins; had firm pressure made with sponges immediately after their division. In this suppression of the hæmorrhage he was assisted by PROFESSOR GOODEVE. The right testicle was dissected out with some difficulty, being adherent to the great cicatrix before-mentioned. The cord was in an enlarged and varicose state. The left cord was dragged down to the bottom of the tumour, and greatly enlarged by immense varicose veins, which had completely flattened the testicle. One of these veins was cut by the knife, and a great volume of blood rolled down. This was stopped by a temporary ligature round the whole cord; and this with the testicle rapidly dissected up. The whole tumour was now removed by cutting across the base with an amputating knife. The bleeding was very great.

Some of the arteries as large as the radial. Every bleeding point, whether artery or vein, was secured by ligature. The testicle was then examined, and found to be destroyed by pressure of the veins. It was removed, therefore, and the cord, which was also infiltrated with elephantoid matter, was severed within two inches of the external ring. The open mouths of the vessels were all secured before the removal of the temporary ligature. The wound was then dressed in the usual way ; after the application of about forty ligatures.

The man was very faint for some time after the operation, but rallied and continued to do well, the wound improving daily, for the first week after the operation ; when feverish symptoms set in. On the 15th day, the wound began to assume a sloughing appearance. On the 17th day, the bowels became loose, the tongue dry, abdomen tympanitic, pulse weak, 112, and low delirium set in. These typhoid symptoms increased. Delirium and stupor deepened, and he died on the morning of the 14th February.

Autopsy held at 4½ P. M., 14th February, 10½ hours after death, and after arteries were injected.

External Appearances.—Wound healthy looking, except on the *left side*, where a little sloughing is seen, and the injection has run out from the mouths of open vessels. The large varicose vein which took the course of the external epigastric artery on the left side, is now shrunk to the size of a crowquill. The varicose tumour that was situated opposite to the umbilicus, is shrunk to the size of a small hazel nut, and consists of consolidated fibrine. This vein lies in the fascia superficialis, and is therefore the superficial epigastric. On being traced, it was found to empty itself into the saphena vein. Absorbent glands about the saphenous opening much enlarged. Deep epigastric artery injected, veins not. They were very small when compared with the superficial. None of the veins alluded to, were injected.

Right Side.—Large varicose veins were found imbedded in the rectus muscle. Internal epigastric artery injected. Veins not ; but they were of very large size, dilated so much in some places, that the little finger might be got in with ease. Valves look like mere wrinkles on the side of the dilated veins. The section of the vein below, measures fully one inch. It was traced into the external iliac vein. The deep epigastric vein communicated above with the axillary and mammary veins. Large openings existed near the sternum, by which it communicated with the intercostal veins. There was a side branch from it, which ran directly into the inf. vena cava, following the course of the last rib, and communicating with the rachidian plexus.

Liver Cirrhotized, resembling in color the pancreas. On exposing the ascending vena cava, below the diaphragm it was found greatly dilated, fully 1½ inch in diameter. Immediately under the liver it measured two inches in diameter. On advancing a little way it suddenly contracted close to the heart, and on examination the *cava* was found

completely obliterated. Vena azygos fully as large as the inf. vena cava usually is, and really larger than the superior. Phrenic veins greatly enlarged. They formed a remarkable plexus on the thoracic surface of the diaphragm. Coats of the vena cava at the dilated parts very much thickened, nearly equal to those of the abdominal aorta.

Emulgent vein on the left side dilated, and the spermatic vein also. In its middle the spermatic would admit of the handle of a scalpel, and this it was which bled so during the operation.

Right kidney, pale and flabby, adherent to its capsule; arborescent on the surface, with cysts in its interior. Left kidney enlarged, pale and flabby, no cysts.

Stomach contained a large quantity of a dark gruelly fluid, resembling coffee grounds.

Mesentery, and omentum loaded with fat, Spleen greatly enlarged, and cirrhzod (*i. e.*) capsule thickened, trabeculae thickened, and blood entangled in the meshes.

Thorax.—Heart fatty on its outer surface, soft patches of fibrinous deposit on the pericardial lining. Muscular fibres had apparently undergone fatty degeneration.

Lungs.—Interlobular veins very much enlarged, and deeply congested. Bronchial veins varicose and greatly dilated.

Cranium.—A large quantity of serous fluid, about 4 oz., effused, between the dura mater and arachnoid. Upper surface of the cerebrum very much congested. Upon the posterior lobes, there were two purple patches, each about one and half inch in diameter, of deep congestion. The interior of the brain was rather pale and anæmic, corpora striata remarkably so, lateral ventricles almost full of fluid. The whole of the brain tissue seemed harder than usual.

EDWARD FITZGERALD, *Dresser.*

Remarks.—This hardening of the brain was the more manifest as contrasted with the flabby and softened state of the liver. The brain retained its firmness completely on the third day after the man's death, but the liver on the first day was so collapsed and wrinkled, that it would not even bear its own weight without losing its form and giving way, owing to the extensive degeneration of its tissue into fat.

This condition of the liver was the immediate cause of the obliteration of the vena cava—the arch or *porta* through which it passes, being lost; the diaphragm, like a ligature, constricted the vein until its walls became adherent.

In the brain it appears probable that fibrous tissue had been developed, in the same manner as in the liver and spleen, the grey substance being assimilated in color to the white, and permeated with enlarged vessels. There was no opportunity of putting this to the test of the microscope, but there is a strong probability that the vesicular brain matter had been encroached upon by albuminous exudation, and perhaps

fibrous tissue, in the same way as in the spleen and liver : and to this circumstance it owed its preternatural firmness.

I may here remark, that a want of intelligence, and great confusion of ideas, are marked characteristics of patients who have long laboured under Elephantiasis. So generally is this the case, that I myself, and the students also, have found the greatest difficulty in getting connected histories of their diseases ; and it is by no means uncommon to find them give one account at one time, and a different one at another. Impaired intellectual function being probably caused by altered cerebral structure in these old cases.

In a case so remarkable as the present, a few words of explanation seem to be called for, as regards the changes which had occurred in the venous circulation in consequence of the obstruction of the vena cava. The blood being checked when it had arrived within an inch and a half of the right auricle, regurgitated back into the vena cava. Hence its great dilatation, and that of the emulgent, spermatic, hepatic, and especially the lumbar and epigastric veins. One route by which it returned to the heart was internal epigastric, communicating with the lumbar, mammary, intercostal, and azygos vein, and superior cava. Another channel, through the lumbar veins, rachidian veins, jugular veins, and vena cava. On the left side, the superficial epigastric, the femoral, iliac, lumbar, smaller vena azygos, great azygos, and superior cava, as well as mammary veins and intercostals of that side, were channels.

Both in this case and in CASE III. where the aorta was obliterated, the proximate cause was fatty degeneration. But in the case of the aorta, the degeneration began in the coats of the vessel, followed by ulceration, false membranes and obstruction or plugging up of the artery. Whilst in the vena cava, the liver having become fatty and lost its consistence, seems mechanically to have constricted the vessel, by dragging down the diaphragm upon it, and to have caused adhesion of its coats.

CASE VII.

Elephantiasis Genitalis simple, treated by incisions.—Attack in Hospital—course of attack.—Operation, Sloughing, Death—Fatty Degeneration of Heart, Liver, Kidneys and Testes.

CASE OF GOOROO PERSAUD.—Age—33 years ; residence—Zillah Cuttack ; occupation—servant ; race—Hindu (brahmin.)

Previous History.—Says that he had never syphilis nor his constitution ever effected with mercury. Stated that about 8 years ago, he

had an attack of severe fever, which came on with strong shivering a day before the new moon, accompanied with pain in the groin, lower extremities, and swelling of the right side of the scrotum; lasted for three days, and left him after profuse perspiration. The swelling of the scrotum remained after the subsidence of the fever; and continued to increase slowly after each paroxysm of fever afterwards.

About three years after the commencement of the disease, the left side of the scrotum became swelled and enlarged.

Sometimes the fever used to come once in a month; while at other times from three to six months. It is not influenced by the new moon. After each paroxysm of fever, the scrotum transudes a certain quantity of watery fluid, which reduces the swelling of the scrotum. About two years ago, a native barber made two incisions on either side of the scrotum at its middle, (when the tumour was about a quarter of the present size,) in hope of curing the disease by suppuration and disintegration of the tumour. These large cicatrices are yet seen. This sore remained for six months, and was cured by some native ointment, without producing any benefit on the diseased structure.

About a year ago he had an attack of fever (as usual) which was very severe in its character, lasted for three days, and left him without any perspiration and transudation from the scrotum. From this time his scrotum began to increase rapidly after each paroxysm of fever, till it attained its present size.

Present Symptoms.—General appearance of the patient tolerably good, bowels open, appetite good, sleep sound, pulse soft and weak, patient is rather of nervous constitution. There is a large scrotal tumour about double the size of the head, pyriform in shape, right side much larger than the left. When the patient stands with his thighs separated—the tumour extends as far as the knee-joint, smooth on its surface. It is hard, tough and elastic. Hydrocele on left side. The testicle on the right side is situated on the top of the tumour, while that on the left side extends half way down the tumour. The neck of the tumour not broad. The opening of the urethra situated in the median line, covered with folded swelled skin like a navel.

The vertical measurement of the tumour is 28 inches, while the circular measurement is 30 inches.

5th.—Fever came on last evening at 4 P. M. with shivering, pain in the groins and feet, attended with some swelling, and pain in the scrotum. The hot stage continued up to this morning. Skin hot, pulse soft and quick, tongue moist and slightly furred, appetite impaired, complaining of pain in the tumour which is hot and painful on pressure, tumour somewhat swollen. Rugæ on the surface not prominent, nor swollen, superficial veins on the surface of the scrotum not distended, nor enlarged.

Soda Carb. grs. x. P. Ipecac gr. $\frac{1}{2}$. Every 3rd hour.

6th.—Fever left him partially at 3 P. M. But it came on again at 6 P. M., with severe shivering, accompanied with pain in the scrotum, more so on the left side, and continued the whole night, and left him this morning. Complaining now of weakness and pain in the scrotum increas-

ed on pressure. Left side of the scrotum somewhat swollen. Surface hot to the feel. Tongue moist and furred ; appetite impaired ; had a stool this morning, not free : skin hot, pulse soft and quick, Rugæ and superficial veins not altered.

Quinine, grs. iij.

Soda Carb. grs. x. Every 3rd hour.

7th.—Had another paroxysm of fever last evening at 6 P. M., continued for three hours and diminished without any perspiration. Pain on the scrotum increased during the paroxysm.

Continue medicine.

8th.—Says that he had fever at 6 P. M., and increased pain in the scrotum ; after three hours the fever abated and he slept a little towards the morning.

7½ A. M.—He is now cool, skin soft, pulse soft and feeble, tongue clean. For the last four days since the attack a feeling of distention, hardly amounting to pain, never leaves the tumour. The tumor is slightly œdematous, pits on pressure, and is slightly reddened. He says, that on the first day of attack, a sensation as of a rush of blood to the part was felt, and greater pain in the part than before.

Ol. Ricini. ℥i.

Aqua Menth. Pip. ℥i. stat. Continue quinine after its operation.

9th.—Had no return of fever, tumour still painful and pits on pressure, especially at its upper part. Continue medicine.

10th.—Had no return of fever, pulse soft and weak : appetite good : complaining of weakness : tumour still pits on pressure. Vertical measurement from pubis to perineum 27 inches, circular 30 inches. Continue quinine.

11th.—No return of fever : bowels opened five times in last 24 hours, passed with griping. Very slight pain in the scrotum, especially when pressed hard ; it pits very little on pressure : redness of the surface disappeared : tongue red and clean ; pulse weak.

Ol. Ricini. ℥x.

Tr. Zingiber. ℥i.

— Hyoscyam, ℥ss.

Aqua Menth. Pip. ℥ij. stat. Continue powder after operation.

12th.—Bowels opened three times in last 24 hours, no return of fever, stools passed without any griping ; tongue moist, clean ; appetite good, complaining of weakness.

P. Cretæ co. ℥j.

Quini. Sulph. gr. ij., ter in die.

13th.—Bowels opened three times in last 24 hours. Patient says that since the perspiration of the scrotum, after each paroxysm of fever was checked (that is about a year ago,) he always had diarrhœa after recession of fever : patient improving in general health.

Continue medicine.

14th.—Had three stools in last 24 hours : had no return of fever : pulse soft and weak : appetite good ; improving in strength.

Continue medicine.

16th.—Being quite free from fever, and very importunate to have the operation performed, PROFESSOR WEBB removed the tumour in the usual manner at half past eight A. M. Operation lasted two minutes only. He had tinct. opii. ʒss. and brandy ʒss. and afterwards brandy alone, thrice repeated: dressing as usual; 20th—Dressing changed.—On 22nd diarrhœa began, loss of appetite, pulse 116. This went on to the 28th, when the wound began sloughing, he then had typhoid symptoms, low delirium, sloughing of the nates until he sank exhausted completely.

Died on the 7th March, 1855.

Autopsy 12 a. m., 20 hours after death.—Body much emaciated, a large bed-sore, the size of the palm of the hand, situated over the sacrum, also involving a portion of the nates on each side.

On opening the body, the lungs were found to be œdematous, and somewhat adherent posteriorly. Heart loaded with fat externally, and the muscular fibres very pale, the aorta at its arch showed some atheromatous spots.

Spleen of natural appearance. Kidneys of natural size and appearance, and the capsule was easily torn off. Liver somewhat enlarged, and had a fatty appearance on several parts of its anterior surface. A small patch on the free margin of the left lobe had a white pearly-looking appearance, it looked on section like a lump of suet. The integuments beneath the diseased parts over the pubis quite healthy.

Head.—On removing the scalp and calvarium, slight engorgement of the vessels was found to exist between the dura mater and cerebrum; ventricles healthy.

Microscopical Appearances.—The liver had undergone fatty degeneration to a considerable extent. The white patch alluded to above consisted of fat cells apparently deposited in a dilated branch of the vena-porta.

Heart.—The muscular fibres of this organ had in places almost entirely disappeared, and fat was substituted within them. Kidneys had undergone fatty degeneration.

Testicles.—Had also undergone fatty degeneration internally in their tubules, whilst there was great thickening of the fibrous tunic. (They were precisely in the state recorded p. 25.)

CASE VIII.

Hypertrophy of Scrotum, with profuse discharge of serum, preceded by Bruise and Abscess in an European.

CASE OF G., age 25 years; race—(English); residence—No. 5, Gree Baboo's Lane; physical confirmation—slender; temperament—nervous; constitution—strong; occupation—veterinary surgeon.

2nd April 1853.—Admitted in the Surgical Ward under PROFESSOR A. WEBB, this morning, with laceration of right heel.

Previous History.—Patient says has been in India since the last 14 years, eight of which he was in Madras and six in Calcutta; states that he is troubled with swelled scrotum. Had rheumatism once

followed by an attack of small pox, which removed the rheumatic pains.

Met with an accident this morning ; while driving in a buggy, he slipt his right leg between the wheel, which lacerated his heel, and made it bleed very freely, and was carried into this hospital.

3rd.—Leg greatly inflamed and painful, passed a very restless night; bowels not opened, notwithstanding the dose of compound powder jalap taken yesterday.

12th.—Laceration fast healing, slept well last night, had no shivering, jalap operated three times. *Had last night a great discharge of fluid from his scrotum.*

Patient says, the first time he had anything the matter with his scrotum was in 1843, when he had inflammation of the scrotum, which he got while riding—the horse having shied, his scrotum got squeezed by the pommel of the saddle ; on the same day something like a clot of blood formed within it. He was removed to the General Hospital at Madras, where 12 leeches were applied, Goulard lotion and tinct. iodine. When he left the hospital the scrotum was still thick, and the lump could be distinctly felt, by pressure a small dint could be made on it. In the winter of 1844, he was again laid up with it. The scrotum first contracted, pushed the testicle to the inguinal region, which caused pain, followed by fever, with shivering, and two lumps in the groin. By fomentations and leeches the scrotum relaxed, testicle descended, fever, and the lumps in the groin disappeared. Patient has had the same sort of attack every winter. The last attack was about two months ago, but it left three small abscesses on the scrotum ; simple Goulard lotion and purgatives, he says, cured him, and now without any pain, or the previous symptoms, the scrotum has commenced, since yesterday evening, exuding a watery discharge; about a pint has been already passed ; patient is becoming weaker.

Quinine Disulp, gr. iij. Ter in die.

To the heel, ungt. resinæ. Bandage and splint.

13th.—Slept well ; the discharge from the scrotum has entirely stopped since last night, and the scrotum has commenced contracting.

17th.—*Vespere.*—Patient has had three stools to-day ; the discharge from the scrotum has again commenced. Patient has found out this evening that the discharge flows from a small hole at the under part of the scrotum, which seems to be one of the sweat pores.

18th.—Discharge of the scrotum stopped at 3 A. M., and bowels have not been opened yesterday.

Vespere.—Slight discharge from the scrotum again, in other respects quite well.

19th.—Discharge from the scrotum has continued all last night.

Continue Dover's powder, grs. x, and Quinine Sulph. grs. ij.

Vespere.—Discharge from the scrotum ceased at 11 A. M.

20th.—About 7 P. M. yesterday, the scrotum began contracting so powerfully as to produce two lumps in the groins (the testicles), which again were so painful as to cause violent fever and ague, with enlarge-

ment of the scrotum, the fever came on at 9 P. M., and lasted for an hour. By fomentations the pain caused by the lumps in the groin was relieved. During the fever the scrotum commenced relaxing, and was quite relaxed by the time the fever left. After the fever left, a violent headache came on, which continues as yet. Bowels opened once yesterday, appetite impaired, tongue covered with a white fur, and feels very weak. Sore of the heel has not been opened this morning.

Vespere.—Head-ache slight now, discharge from the scrotum commenced at 11 A. M., and continues as yet.

21st.—Had no fever last night; discharge from the scrotum ceased at 3 A. M.

22nd.—Discharge from the scrotum came on at half-past 6 P. M., and stopped at 4 A. M., leg continues to be bandaged.

23rd.—No discharge from the scrotum; strapping removed this morning, sore looks healthy and healing fast.

Vespere.—Discharge from the scrotum came on to-day at 11 A. M., and ceased at 4 P. M.

24th.—There has been no discharge from the scrotum.

25th.—Discharge from the scrotum began yesterday evening, and ceased at 3 A. M. Bowels not opened yesterday.

26th.—Bowels still continue to be confined; has this morning fever, contraction of the scrotum and pain in the inguinal region; leg continues to be bandaged.

27th.—Fever left him at about 11 A. M. yesterday, when the scrotum relaxed, inguinal pain ceased, and discharge came on which stopped at 3 P. M. Bowels not opened yet. Patient says he feels weak about the loins and would like to have a pitch plaster.

28th.—Says he feels stronger after the application of the pitch plaster, and bowels opened yesterday six times by the purgative.

C. E. W. BENSLEY, *Dresser.*

Several Cases have occurred like the following :—

CASE IX.

Abscess of Tunica-Vaginalis in Elephantiasis Genitalis.

CASE OF HUSNOO, age 40; admitted—21st March, 1854; temperament—sanguine.

Symptoms.—Five years before the patient's admission into hospital, he had Hydrocele, which was tapped by a native practitioner. He never had any venereal disease neither did he ever use mercury. Two years after the Hydrocele, he had fever followed by pain and swelling of the scrotum, to which he applied a poultice of *neem* leaves which caused a profuse perspiration from the scrotum and removed the swelling. He had similar attacks every six or eight months after this, and he used the same remedy with great relief. On admission, the scrotum was very much swollen, and the patient complained of heat and pain in the under-

surface of the scrotum. An abscess formed in the left tunica-vaginalis, which was opened and the pus let out, the next day the opening was enlarged and the swelling of the scrotum greatly diminished. The sac of the abscess rapidly contracted, and the wound nearly filled up, but was obliged to be opened again in consequence of a sinus having formed. But however this again rapidly filled up, and the patient was discharged cured.

Treatment.—Spt. lotion for the scrotum, Dover's powder gr. x. at night, six leeches to the scrotum, fomentations, bandage, lint introduced into the wound and poultice applied, sulphate of copper wash, and resin dressing, tr. iodine to the scrotum, caustic and dry lint.

CASE X.

Elephantiasis Genitalis large size after contusion.—Right Tunica Vaginalis calcarized, excised, and part of Testis calcarized (excised) left Testis removed for Calcarious Degeneration—native of Bengal, age 60—recovery.

CASE OF MEERZA ALLI BUX, age—60 years ; occupation—burkundauze ; residence—Cuttuck ; race Mahomedan ; temperament—sanguino-bilious ; admitted—24th January, 1854 ; time of continuance—14 years ; time in hospital—5 months and 10 days ; cause of discharge, cure.

History before admission.—States that when he was about 16 years old, one day as he was riding on horse-back, he suddenly fell down on the ground, and received a contused wound on his left scrotum, so that it was somewhat swollen and painful. He then applied some native physics, by which the pain disappeared, but the swelling remained just as before. About a fortnight after this, he, according to the directions of some native quacks, began to squeeze the cord as hardly as he could bear, as if thereby to reduce the scrotum to its natural size. But by this manipulation, he only succeeded in making the cord more swollen and thickened ; the size of the scrotum remaining unaltered. After five years, his right scrotum began to be increased in size spontaneously, so that it could not be attributed to any obvious cause or lunar influence ; and in the course of 12 or 13 years, it required the size of its fellow, both being as large as a fœtal head. From the last 10 years, he began to get fever, sometimes once, sometimes twice in a month ; preceded by pain and swelling in the glands of the groin, and ushered in with rigors : but there is no certainty as to the time at which it recurs. The fever generally used to remain for three or four days at a time, and the scrotum, receiving an additional bulk at each recurrence, ultimately attained the present size.

Present Symptoms.—The scrotum is enormously enlarged, it is somewhat globular in shape, hard in some places and soft at another, and communicates a sense of elasticity rather than fluctuation. The skin is of a dark grey color, rough, thick, and corrugated, adherent to

the subjacent parts *but not tuberculated*, and marked here and there with small fissures. The penis is entirely obliterated, being involved in the substance of the tumour, so that only an aperture is left on the upper third of its anterior surface, leading to the canal of the urethra, through which the urine flows, running down by the side of the tumour. The raphæ is somewhat enlarged and distinctly marked; it is not exactly in the mesial line, but encroaches a little the right side, hence shows that the left scrotum is larger than the right one. The left testicle is distinctly felt almost on the middle of the left scrotum greatly enlarged, while the right testicle is smaller *and situated at the upper and back part of the right scrotum* very large and hard as stone. The neck of the tumour is very narrow, and consists almost wholly of skin and a sparing quantity of the substance of the tumour. When the patient is made to stand, the tumour hangs down as low as about three or four inches above the ankle joints, and the body is bent by the weight of the tumour. There is no pain, so that it can be handled even roughly with very little or no pain being complained of. The glands of the groin are slightly swollen and painful. Its circumferential measurement on the most prominent part is $33\frac{3}{4}$ inches, and its length from below the pubis to the lowest end in a straight line is 33 inches. General appearance pretty healthy, appetite good; bowels regular, rather costive—and sleeps well in the night.

After allowing the patient three days to rest (because he came from Cuttack to Calcutta by walking, with such a large tumour, 140 miles,) and after having bowels well cleared out by purgatives (for the patient is an opium eater), the operation was performed at 12 o'clock, January 28th, 1854, by PROFESSOR A. WEBB, in the following manner:—The patient was at first ordered to be taken upstairs in order to take a sketch of the tumour, but as the patient was able to walk about, he was allowed to go there by himself, and he came to the theatre. As soon as the drawing was over, the operation commenced thus:

Operation.—The patient, after bringing him under the influence of chloroform, was placed on a common hospital cot, as near to edge as possible, so as that the tumour may hang down freely: the legs being raised upon two stools, one on each side, so as to place them on the same level with the body. The tumour was first raised up by a large towel by two assistants, one on each side; drained, and turned upon the abdomen; then depressed so as to allow the forefinger of the left hand of the surgeon, to pass quite easily through the opening which gives exit to the urine. The knife was then passed with the right hand, through this opening, guided by the finger of the left hand, till stopped by the penis. By a single stroke upwards, the canal was laid open, and the penis was exposed imbedded in the substance of the tumour. Having cleared it from the surrounding parts, it was raised up by an assistant, and there secured. The testicles were then dissected out from the mass of the tumour by some longitudinal incisions on each side, though the left one required a very careful dissection to expose it, because it was situated deep in the substance of

the tumour, and was enlarged from the existence of previous effusion in the tunica vaginalis. The tumour was turned aside so as to give more ready access to the right testicle, which appeared as large as a hand, and the knife grated against it. It was dissected out and turned upwards. The large sac of the left testicle also. This was much larger than the right one, in consequence of greater accumulation of brown leathery-looking substance and fluid in the tunica vaginalis. Its substance had been completely disorganised and degenerated, so that it appeared something like a piece of bone. Thinking it quite unnecessary to keep the left testicle, it was removed by the surgeon, after a ligature had been cast round the cord, who then continued his operation, making with an amputating knife one transverse stroke, at the neck of the tumour, which completed the separation.

The Professor then returned to the calcarized tunica vaginalis enclosing the right testicle, dissected it out from the cord, and from the front of the testis. It was so stony, that the edges of two or three knives were spoiled during the operation. A part of the testicle was calcarized, quite stony, and removed. The operation was all completed within five minutes, and with comparatively little loss of blood. The bleeding vessels were soon secured by ligatures.

Two sutures were applied at the lower part, in order to bring the flaps saved in apposition. The rest of the surface was to be dressed with adhesive plaster. The penis was rolled up in a piece of lint dipped in oil, and the whole supported by a suspensary bandage.

The tumour, after its removal, weighed 38 lbs., not including the loss of blood and collection in the hydrocele.

After the operation he complained of feeling cold and was actually shivering; pulse soft and very weak, beating at the rate of 40 in a minute; respiration is somewhat slow and weak, and bearing no correspondency with the pulse. This was followed, after six or seven hours, by the symptoms of reaction, the pulse became stronger and firmer, respiration easier; great thirst. Was feverish for two or three days, but it afterwards disappeared, and the patient complained of severe pain all over the abdomen, increased by the slightest pressure. The pain and other symptoms disappeared on the third or fourth day, and the patient exhibited symptoms of weakness and prostration of strength only.

Treatment.—On admission, a full dose of castor oil was given to clear out his bowels, and he was also well purged the day before the operation. *Locally:* just after the operation, the arteries were tied by ligatures and the wound dressed with strapping of adhesive plasters. The first dressing was not opened for two days, and on the third day the wound was dressed with turpentine and resin dressing. Afterwards the wound was well washed with caustic lotion, to the strength of 10 grains to the ounce. Over it, resin and turpentine dressing was put on, and the whole covered with compresses and T shaped bandages. Afterwards, when the wound began to contract, it was strapped with an adhesive plaster. *Internally:* just after the operation he had brandy ℥ss., tinct. opii ℥ss. and mist. camphor ℥ss. at bed time. After a few days, he used to get brandy and opium, in order to support him while

he was very weak. When his bowels were likely to become loose, tinct. catechu and chalk mixture was given to him; and the dose of opium was increased to six grains, because he was an opium-eater.

Treatment, consisted locally of lint, caustic lotion, and strapping; internally quinine mixture.

Another piece of calcarized matter was taken out of the testicle, which was thus reduced to a size little larger than an hazel-nut. (He was ultimately discharged cured.)—*From notes of MOHA NUNDO MOOKERJEA and KHETTERMOHUN MITTRE, Dressers.*

CASE XI.

Elephantiasis Genitalis of Penis and Scrotum—Operation—Spasmodic Stricture—Jaundice—Constant Vomiting—Delirium—Death. Autopsy—Contraction of Pylorus, Enlargement of Liver, Granular surface, hardened Spleen and Pancreas—compression of Medulla Oblongata by effusion of Serum.

CASE OF RADHANATH DOSS, age 40 years; occupation—labourer; residence—Furreedpore; race—Hindu; temperament—sanguine; admitted—17th September, 1853; cause—syphilis; time of continuance—seven years; time in hospital—10 days; cause of death—inanition, died 27th September, 1853.

Particular Symptoms.—The patient, a native labourer, is a strong athletic looking man, had some three or four chancres seven years ago which healed in six months, a year after, scrotum showed signs of enlarging; the patient tried remedies obtained from Chandney Hospital and Native Practitioners to prevent its enlarging, but without avail. The patient has had fever once a month with the changes of the moon, and after each accession, enlargement of the scrotum is noticed. The scrotum now measures 23 inches in circumference, an enlarged fleshy mass, having the character of a flattened penis, occupying the position of that organ, but no part of the penis is contained in it—is altogether an extraneous growth. The penis is removed at least three inches nearer the pubis and is contained in the fleshy mass of the great tumour; a small hydrocele is situated on the right side in the substance of the tumour. Patient does not feel any pain in the scrotum, has continued pain in the loins, which he has had for years, prevents sleep. Bowels irregular, urine is not passed freely, appetite impaired, has had a continued pain in his loins, which prevents his sleep at night.

With the patient's consent on the third day the tumour was removed; fourth day the patient had slight fever, bowels confined, nor has he passed urine. Catheter inadmissible from spasmodic stricture, overcome by a full dose of opium; fifth day, fever still continues, bowels not opened, passed urine freely, no appetite, tongue dry, pulse, full and irregular, very slight discharge from wound; sixth day, patient has had retching since yesterday, rejects almost every thing he takes, vomits a greenish fluid,

fever slight, bowels still confined, did not retain his medicine. The dressings were changed this morning, very little discharge from the scrotum, testicle found adhering to perineum. Seventh day,—Nausea slightly relieved, bowels still confined, this is the fifth day since they were last opened ; fever less, no appetite, dressings changed, an enema was administered, which operated after two and a half hours. Eighth day—Bowels opened twice from enema, sickness of stomach continues unabated, medicine is rejected whenever administered, has taken no food for several days, had very little sleep, pulse 100, full and quick, tongue, dry and furred. *Vespere*.—Vomiting still continues, neither the chloroform nor the hydrocyanic acid had any effect upon it, pulse quick, full, eyes sunken, patient weak, tongue dry and coated with fur, has taken no food, bowels opened once from enema. Sloughing of the scrotum noticed, the adhesions are torn up, patient complains of dizziness, confused ideas, and is at times incoherent. Ninth day—Patient evidently sinking, pulse 120, a mere thread, voice husky, eyes sunken, vomiting ceased since 3 A. M., retained three pills, blister rose well, hand and legs icy cold, the adhesions of the scrotum entirely destroyed. The patient gradually sunk and died at 10 A. M. on the tenth day from his admission and seventh from his operation.

Morbid Appearances—Observed three hours after death.—*Wound*—Sloughing of the whole of the wound with dark spots. Adhesions of the testicle to pubis broken up. *Head*.—Effusion of serum, blistering the arachnoid all over, dura mater on both sides thickened of a yellow color. A large quantity of serum compresses the medulla, where the eighth pair of nerves passes. The medulla compressed to the size of the little finger, ventricles and cerebral substance perfectly healthy. On making sections of thalami optici, the mouths of very large vessels were seen. *Thorax, lungs*.—Black spots of apoplexy in the lungs and adhesions, congestion of vessels of the right side of the heart leading to the lungs. *Heart*, healthy and of natural size—*Abdomen, liver*, very much enlarged, of a slate color, nodulated and hard, covered all over its convex surface, in fact covered generally with grains like sand, *lobus spigelii* projecting and equal in size to left lobe, *Gall bladder* distended with bile, so thick and ropy and black as to resemble *tar*, ductus communis apparently impervious, *Pancreas* enlarged and very much hardened. *Spleen*, enlarged, very hard and covered with plates apparently cartilaginous ; *Kidneys*, natural size and healthy ; *Stomach*, fundus thrown into very prominent folds ; *Duodenum*, softening of the mucous membrane. Pylorus, firmly contracted, would scarcely admit a probe. The duodenum was filled with most tenacious mucus and not a particle of bile observed. The mucus was so thick and abundant, that a stream of water would not remove it, it required to be dislodged with the fingers. Portions of the jejunum examined were likewise devoid of bile or of any trace of food. *Small intestines* excessively congested, especially the valvulæ conniventes like as in cholera, and the intestines generally had no fæculent matter.

INFLAMMATORY ELEPHANTIASIS GENITALIS.

The mode of Attack—is often very sudden and painful—I have seen a man fall down with the pain, whilst I was talking to him. It will invade a man while at his meals, or walking in the streets, when he must of necessity stop till carried away. Pain in the inguinal regions, retraction of the testicles, swelling of the inguinal glands, shivering, &c., precede the heat, and shining distention with enlarged œdematous rugæ, and redness of the scrotum, which follow; as also general fever, subsiding after three or four days' continuance. Whilst there be a vital resistance in the part this resolution occurs by sweating—a great discharge of fluid, and return to the nearly normal condition. Or as the disorder advances, by diminished sweating—less perfect resolution.—Or, as the disease becomes established, and vital resistance recedes, by no exudation through the hypertrophied and altered skin, therefore no diminution. An European (p. 34) affords a good instance of resolution by sweating. The discharge of serum was in a thin stream from one or two pores only. Occasionally, the swelling is so rapid and so great, that the scrotum actually splits under the tension exercised; and this may or may not be in the line of raphé. Or instead of this copious watery exudation, it may be that bloody serum oozes out all over the scrotum, or, more rarely still, a fluid like milk and water, or again a ropy fluid.

In other instances suppuration sets in, abscesses form in the scrotum, which is a most favourable mode of natural cure. Not only serous effusions, but effusions of fibrine sometimes take place into the tunica vaginalis to the extent of many ounces, and sometimes effusion of pus, (as in CASE IX. p. 35,) rarely is the testis itself inflamed and infiltrated with fibrine or elephantoid matter.

In other cases mortification occurs, which may terminate fatally. More commonly still, the whole of the skin of the scrotum and penis sloughs off, leaving these organs as bare as they are found after the usual operations for removal of these tumours by the knife. On three occasions the urethra was opened. Cases illustrative of this violent form of inflammatory action are here adduced. I have had nine such cases at one time.

There were cases brought to my Hospital in which by one febrile paroxysm, and that a first and only one, the penis swelled the size of a man's wrist, and the scrotum to half the size of the head. On another occasion the penis and

scrotum swelled and sloughed in the College Hospital, (to which the man came for an accidental injury) by one only paroxysm. The metastasis of the disease causes this inflammatory attack sometimes, or a bruise over the elephantoid scrotum, or more commonly still arrest of perspiration. Sudden cold produces it. A Hindu Sircar walking to his friend's house in hot weather, his body greatly heated, plunged into a tank of cold water. The disease appeared two days afterwards.

In another case a man, greatly fatigued, slept in a cold damp place. He had the onset of this disease on his journey home. The scrotum swelled up so rapidly—the tension became so great, that it burst along the raphé (*see drawing*). The skin receding left an ulcer which increased daily, with fever and pain. I was sent for to remove the “mass of diseased testicle,” but the only operation consisted in dissecting off the hypertrophied scrotum; leaving the testicles and the skin of the penis, which were sound, untouched. He did well.

The following is another instance :

ELEPHANTIASIS GENITALIS, SCROTUM SPLIT.

Nobo Kisto Doss, age 37 a boat-man residing at Barrisal. He had first Hydrocele, which lasted one year. He was in hospital for eight days. Of his present attack he says there was first a crack along the raphé six days before admission, but no water escaped at once in a stream, only oozing. There was an ulcer left, which increased day by day accompanied by fever and great pain.

Most likely a split emptied the distended, sub-cutaneous cellular tissue.

CASE XII.

Inflammation—Gangrene of old Elephantoid Scrotum—Death, Abscesses in liver from Gangrene of Perineum.

RAM KISTO SIRCAR, age 50, for 25 years had suffered from scrotal Elephantiasis, with irregular attacks of periodic fever, generally recurring twice in the month, sometimes once in two months, and lately remitting for two years; usually going off with sweating, at other times with a copious discharge of urine, of a brick red color. His general health good. Never had Syphilis. About a fortnight ago, he had a more than usually severe attack of the periodic fever and swelling of the scrotum, which left him very weak. While still suffering from the depression, he was obliged to exert himself beyond his strength, and to remain standing and directing workmen the greater part of the day. He was greatly exhausted, and in getting into his palanquin, squeezed his scrotum accidentally.

Symptoms of inflammation now set in with throbbing painful distension of the part, till the scrotum was as large as his head; also repeated shiverings, fever more severe, and dreadful pain in the loins.

Vomiting and hiccough now followed, and the scrotum became gangrenous. On the 14th February a line of demarkation was seen at the neck of the scrotum, and the dead parts were removed with the knife. The testicles and cords were perfectly sound and healthy. But the stomach continued to reject all food, the tongue was deprived of its epithelium, he suffered occasionally from hiccough and cold sweats. He gradually sunk and died on the 18th February.

CASE XIII.

Fatal Case of Double Hydrocele, and Sloughing of the Perineum and Scrotum, from an Abscess—Absorption by Hæmorrhoidal veins—Liver abscesses, death.

CASE OF DOORGA RAM DUTT, No. 294, age 37 years; occupation—servant; race—Hindu; residence—Zillah Sylhet; temperament—bilious; five months in Calcutta; admitted under care of Professor A. Webb, M. D.—30th January, 1855; died 23rd February, 1855.

Previous History.—When 18 years old, suffered for two months from tertian intermittent fever with enlargement of the spleen. About seven years ago, he again suffered from intermittent fever of the same type, but not from spleen disease this time. Has had chancre twice, constitution never affected with mercury. About two years ago he got Hydrocele of both testicles, and enlargement (Elephantiasis) of the scrotum. Hydroceles have been gradually increasing in size. Ten days ago, a large abscess on the side of the perineum and scrotum (back part) burst. The parts then took on to slough, and an extensive sloughing sore became established. He had several sharp febrile attacks and rigors before the bursting of the abscess, and he has been much reduced in strength. Fever comes on now generally towards evening.

Symptoms, 31st January, 1855.—Considerably reduced in flesh, countenance anxious and expressive of suffering. A large sloughing ulcer seen on the back of the enlarged scrotum, and left side of the perineum—measures seven inches in length, about two in breadth. Entire surface of the ulcer covered with thick black sloughs. Smell very offensive. Margins of the sore rather jagged. Anus and rectum sound. On removing the sloughs, the urethra, to the extent of two inches anterior to the triangular ligament, was laid bare. Bowels pretty regular. Appetite poorly, pulse small and quick. Gets fever towards evening, which generally lasts several hours. Passes very restless nights.

Treatment.—Hydrocele on both sides tapped, $2\frac{1}{4}$ lbs. of fluid drawn off from right, 1 lb., 12 oz. from left Hydrocele.

Ol Terebinth and charcoal cataplasm to ulcer.

R Ammoniz Carb.	gr. v.	} Diet half, Rum $\frac{1}{2}$ measure, three times a day.
Quinz Disulph.	gr. ij.	
Pulv. Ipecœ. co.	gr. v.	
F. and Pulv. j.	ter in die...	

4th February.—Skin, hot and dry, complains of great thirst, tongue moist and furred, pulse quick, of moderate volume, sloughs cleared away from the ulcer. It is beginning to look healthy, no smell from it.

Treatment.—Solution argent. nit. (10 grains,) resin dressing.

Continue powder, three times a day. *Diet.*—*Half, Rum* $\frac{1}{2}$ *measure,*

8th.—Has had a troublesome hiccough for the last four evenings. Fever generally comes on in the afternoon. Occasionally gives a short dry cough. Auscultatory sounds, natural. No pain complained of in the right side. Has one stool daily, color clayish, pulse small and quick, feels very thirsty, has scarcely any appetite, granulations slowly springing up in the ulcer.

Treatment.—Continue Medicine.

Diet.—Rice and Pigeon soup, rice and curry. *Rum.* Three times a day.

10th.—Bowels relaxed, had seven thin stools during the night, ulcer beginning to look pale. *Treatment.*—Mist. Cretæ Co. \mathfrak{z} i. ter in die.

Continue dressing and Medicine. *Diet* as before.

14th.—Diarrhœa continuing, losing strength fast, pulse quick and small, ulcer looking pale and weak, gets fever every evening, frequently troubled with hiccough, abscess formed in the right nates, it is superficial and not very large.

Treatment.—An Abscess in nates opened. Poultice and lint to it. Continue rest as before.

19th.—Becoming worse and worse, passes very restless and sleepless nights. Fever comes almost every evening and lasts many hours, strength greatly failing, can scarcely eat anything, bowels loose, ulcer not improving. Continue treatment as before.

The patient continued to grow worse daily, the hiccough became more troublesome and frequent, his appetite completely failed him, passed sleepless nights, fever returned daily. He died at length, at 3 A. M., on the 23rd February, completely worn-out, he was twenty-four days in Hospital.

Autopsy held at 1 P. M., 23rd February, 1855, 11 hours after death. Body much emaciated.

The posterior part of the scrotum and perineum gangrenous.

The urethra about the bulbous portion laid bare, and anus projecting as if stuffed for dissection. Several sinuses communicated with the ulcerated parts, some go to the bottom of ischio rectal fossa. One on the left side extends to the hip joint but does not penetrate.

Thorax.—Heart pale and flabby, rather enlarged on right side and covered with white deposit. Ventricles contained a small quantity of uncoagulated blood. Lungs healthy.

Abdomen.—Liver larger than natural size. A large abscess formed a projection towards the chest, and four smaller ones in the right lobe, the largest containing about a pint of thin unhealthy looking pus, the others thick pasty matter only. Free from all adhesions (unnatural) with the abdominal parietes. Spleen, firmly adherent to the diaphragm. Much reduced in size and exceedingly pale. Capsule thickened, organ had undergone cirrhosis. Kidney healthy. Intestines rather pale.

CASE XIV.

Universal inflammation of the Scrotum, with an Abscess at the root of it on the left side after Metastasis of Elephantiasis from the Leg.

CASE OF SEER ALI, a man of tolerably robust and tall build, a coachman in profession, Mahomedan in religion, and aged 33, admitted into Professor Webb's Ward, March 6th, 1855, with universal inflammation of the scrotum, enormous swelling, and an abscess on the left side at the root of it.

Previous History.—The patient states, that about 8 years ago, he had Hydrocele of the right scrotum, which was not marked by rapidity of growth, and was about the size of his two fists. It gave him no inconvenience, and he could continue with his ordinary pursuits of life without any suffering and annoyance. He was never operated on for it. About 3 years ago he had chancre, of which he was cured by a native practitioner. A year after this, he noticed for the first time, pain and swelling in his right leg; and in the course of a month or two he became subject to periodic attacks of moon fever. The fever visited him regularly twice in a month at the full and new moon, and with every paroxysm the leg became inflamed, red, hot and painful, and very perceptibly increased in size. He was obliged to give up his work and lie on his bed. After some two or three days the fever subsided, and with it all the symptoms of inflammation vanished; the pain became less, the redness faded, the heat abated, and the swelling for the most part went down, he felt himself once more every way well, and found himself strong enough to undertake his business. He continued so till the approach of next full or new moon, when he would again go through all the train of above-mentioned symptoms; which would again vanish one by one, to re-appear at the next full or new moon. But he says, he has been observing all along the continuance of the disease, that with every fresh assault of the fever he would get an accession of bulk to the leg, so that in about 20 months, his right leg was of uniform diameter throughout, and the right foot swollen and œdematous.

About 2 months ago (the patient says) the leg and foot first began to diminish in size from the application of various native drugs, and in the course of a month the leg diminished in size to its natural form, but the foot continued slightly œdematous. Along with the subsidence of the swelling of the leg, the scrotum began to evince pain and increase in size. In the last but one attack of moon fever, the scrotum became inflamed and exceedingly painful to the touch, and greatly swelled in size. With the present attack of the fever, the patient's suffering became indescribable. The scrotum became intensely red in color, exceedingly tender to the touch, and considerably enlarged in size; he was unable to move or stand up, was deprived of night's rest, his temper became irritable, and his mind was absorbed by his suffering. For this he had leeches applied to the scrotum; and tinct. iodine application, but as they relieved him not in the least from his agony and intense suffering, he sought admission into our ward.

Symptoms on admission.—Local Symptoms.—The scrotum is of the size of man's head, measuring in circumference 15 inches, and in length from its root to the lowest part 22 inches; of an intense red color, exceedingly painful, and of an increased temperature. It is smooth in aspect, and very tender to the touch, on the left side at the root of the scrotum, there is seated an abscess, distinctly fluctuating on pressure. There is a Hydrocele on the right side. Right leg of natural size, but the foot slightly œdematous.

Constitutional Symptoms.—Countenance expressive of intense suffering and great anxiety, body bathed in a profuse perspiration. Skin cool, pulse small but frequent, respiration slightly hurried. Complains of an increased thirst, and impaired appetite. Says he is not refreshed by sleep at night. Bowels costive.

6th.—*Treatment.*—4 P. M. Open the abscess.

Put lint within the wound, and apply a suspensary bandage to the scrotum. Diet low.

7th.—The patient looks somewhat better in the face. Says he had no sleep last night. Bowels not moved since admission. The abscess was opened last evening, and about an ounce of laudable pus let out. The wound looks sloughy, and emits a very bad and intolerable odour. The scrotum not so very painful as before. Says he had fever last night.

Evacuate the hydrocelic bag of the right side.

Apply a large poultice to the scrotum and suspend it.

Mist. Quinin ζj . Ter in die. Diet full.

8th.—The Hydrocele was opened yesterday morning, and about 6 ounces of fluid let out. The wound looks unhealthy and sloughy. Had no fever last night. Slept better. Scrotum less painful. Had one motion since last report. Appetite good.

Apply resin dressing to the wound, and keep the scrotum suspended.

Cont. Mist. Quinine. Diet full.

9th.—The patient says he feels better this morning, pain in the scrotum diminishing, the intense red color is fading away. The swelling decreasing. The wound looks better. Appetite good. Bowels regular. Had no recurrence of fever.

Tinct. Iodine to the scrotum, and keep it suspended.

Cont. resin dressing and Quinine mist. Diet full.

The case is still in the hospital. The scrotum nearly natural size.

JUGGO BUNDO BOSE, *Dresser*.

1st April, 1855.

CASE XV.

Hydrocele of the Right Testis, with slight Elephantiasis of the Scrotum.

CASE OF GOPAL.—The patient, a man of excellent and robust health, admitted into Professor Webb's Ward, 26th January, 1855.

The patient stated that when about 20 years of age, he had Hydrocele of the right side for the first time. It was not marked by rapid progress,

so that till about 3 years ago, it was about the size of the man's two fists. A year after this, the patient had Gonorrhœa, and since that time, the scrotum began to grow rapidly, and is at present the size of his head and has completely buried the penis. Had never chancre and was never salivated. In habits the patient was very temperate. Was never operated on for Hydrocele, was never subject to moon fever.

Symptoms on Admission.—The tumour is a narrow-necked one, having a diluted scarlet color, is very soft and unresisting to the feel. Its surface is even, and it is slightly tender to the touch. Says about 10 days ago he had an attack of fever which is not on him now. During the paroxysm the scrotum inflamed, and was very painful. It has somewhat increased in size since he had the attack of fever. The size of the tumour mainly depends on a large Hydrocele on the right side, for the left testis is of normal size, occupying the upper, and the posterior part of it on the left side, and can be distinctly felt by the hand. In length tumour is 10 inches, having a circumference of 30 inches at its widest part. Has no fever now, skin of natural temperature, pulse of ordinary frequency, no thirst or headache, says he is very hungry. Bowels in good order. His constitution healthy.

29th January.—The Hydrocele of the right side was opened this morning at half-past 7, by me, and a large quantity of fluid evacuated, which had a faint greenish hue. This fluid on measuring afterwards amounted to 112 ounces. It contained a very small quantity of albumen. On removing the fluid, the scrotum became of the size of a couple of his fists, and a tight bandage was put round it, the scrotum being previously placed between two compresses. Immediately after operation he was ordered ʒss. of laudanum as he complained of pain, no re-accumulation has taken place after the operation as yet, 28th January 1855.

31st.—The size of the scrotum much the same as before, no pain in it and accumulation of fluid.

Cont. bandage and compress and apply Tinct. Iodine.

Apply a separate bandage to the penis.

1st. February.—The scrotum is getting smaller, and the penis coming out. No accumulation of fluid. The patient is doing well; his appetite good, bowels regular.

Cont. above.

2nd.—The scrotum very much diminished in size, it is at present about the size of two oranges. The penis more distinct, and about $2\frac{1}{2}$ inches in length. Wants his discharge.

JUGGO BUNDO BOSE, *Dresser.*

ELEPHANTIASIS GENITALIS DOLENS.

Sheakh Meah Jan, aged about 55 and very fat, went with Colonel Everest on the Trigonometrical Survey from 1832 to 1838. He returned to Calcutta in 1849, when Elephantiasis began, with a strong fever of four days' duration, and on

its subsiding the scrotum was left swollen. He had great pain during the existence of the fever, which returned at intervals of 20, 25 and 30 days, and always increased the swelling of the scrotum. The disease decreased by "sweating out water." The pain during the access was so severe, as to cause him to roll upon the ground, and even sweat with agony. There was no pain after the operation, which took place on 29th June, and the man was discharged from hospital 19th August, 1853, with a new covering of skin to testes and penis.

ELEPHANTIASIS GENITALIS VENEREAL.

In the Venereal variety, the diseased action *in men*, frequently begins with the prepuce, which, in consequence, may acquire an enormous size, quite as large as a man's head. Or it is of great length and monstrous form. Sometimes resembling the trunk of an elephant, or like a great tortoise. Sometimes an additional penis seems to be super-added by the immense development of a single condyloma. Whilst in place of the comparative smoothness of the simple variety, this tumour of the scrotum is covered with bosses and tubercles. Sometimes, but more rarely, the cellular tissue over the crest of the pubis forming the abdominal fascia becomes diseased. This venereal variety is more common in Mussulmen than in Hindus. Circumcision probably is some safeguard. *The operative procedures* are the same as in the simple variety, and will be considered hereafter.

In women whilst the simple variety always, I think, affects the great labia, neither form of the disease appears to have fever. The venereal commonly begins in the clitoris or nymphæ. In one girl about 10 years old, without any evidence of nubility, for she was quite a child, there was, with chancres, enlargement of the clitoris. One-half of the syphilitic cases (generally prostitutes) presented hypertrophy of the nymphæ, which, like phymosis in the men, often accompanied Gonorrhœa. Here also the parts assume monstrous forms. For the great labia are generally pushed aside by the growth and protrusion of the inner parts, and after operations for removal of the disease, resume their natural position. The vagina and anus are often obstructed by condylomata. There are also occasionally fistulæ between the bladder and vagina, or communicating with the rectum; and abscesses of the mucous follicles. Sometimes the condylomata obstruct the urethra. Great fœtor arises from the innumerable bosses

these growths present. Sometimes callous infiltration of the sub-mucous urethral tissue produces stricture, and this again hernia of the bladder into the vagina. The tumours are not so large as in the other variety, but are more dense in structure. Here also the parts under the influence of this disease produce growths very much resembling the male penis. I have never seen such monstrosity in any instance where it was not reasonable to believe syphilis was the point of departure.

Abscesses form occasionally, and, if properly treated, are accompanied with great diminution of the bulk of these tumours. Chancrous ulcers on the os uteri, obstructions, dilatations, and strictures of the fallopian tubes, and abscesses and fibrous growths of the ovaries, are also met with. The tubes and ovaries are also I believe altered by fatty deposits.

CONCLUSION OF PART I.

I have now brought to a close the first part of this paper on the Pathology of Elephantiasis. Whether manifested in the scrotum or in the limbs, it is accompanied, we have seen, by internal changes of vital organs.

It is in truth a blood disease. Like rheumatism it may show itself in the limbs, but not in the joints; it affects rather the subcutaneous cellular tissues; like rheumatism it affects the sheathes of the nerves; like rheumatism it is metastatic; like rheumatism it affects the heart, not externally, but in its ultimate structure. Nor does it confine its destructive changes to the outside only of other vital organs, but effects organic changes in the liver, the spleen, the kidneys, the testes and probably the brain.

I look upon these demonstrations of the true Pathology of this disease as perhaps the more valuable from the great difficulties which beset the investigation. I have myself been for ten years operating upon elephantoid tumours without ever once having an opportunity of examining after death the state of the internal organs in such cases.

I am quite ready to believe therefore that I may overrate the pathological importance of these observations, but in general Pathology they will, I think, be found to link with Rheumatism and Tuberculosis in the western, and with the same diseases in the eastern world: as well as with Beriberi and Lepra, perhaps throw light upon the general subject of blood diseases.

I have observed in some of the latest continental works a strong desire for information upon this singular disease; which

it is eminently the duty of English Surgeons in Bengal to afford, I consider it a great honor to have led in the right track.

The disease is most striking and wonderful—tumours upwards of 100lbs. weight are safely removed by the knife in a few seconds by one operation; and in the usual procedure (detailed at the end of this paper) in from two to three minutes, preserving intact all the organs of generation. And lastly, and most wonderful of all, the very process which heals up this enormous wound, during two months or more of granulation, radically cures the disease. If Elephantiasis have been in the extremities as well as the scrotum, the amputation of the scrotum cures the disease.

TREATMENT OF WOMEN.

The removal of these tumours in women is so easy a matter that it may be treated of now.

In the simple variety of the larger tumours of the great labia in women, simple excision suffices for their removal, which is done by one stroke of the knife, (there is little bleeding,) a large amputating knife being the only instrument required. Where the great labia are only slightly affected, compression with the bandage, and iodine solution applied daily (40 grains to the ounce) effect the cure. When the nymphæ and clitoris are affected, as in the venereal variety, some care is requisite to avoid injuring the urethra, when the knife is used; and great care in cutting away all condylomata, keeping the walls of the vagina asunder with black cotton: and treating with caustic (nitrate of silver) whatever chancres or abscesses are found—for the raw surface left by the knife will otherwise become chancreous.

In the simple variety the parts rapidly heal after operation, and in the other also, if carefully managed. But the abscesses in the mucous follicles are almost certain to produce fistulæ, unless dilated or cut across, caustic applied to the bottom, and the sides kept asunder by black cotton.

Abscesses in the fallopian tubes or ovaries may sometimes, in very thin emaciated women, be detected early, and opened through the abdominal walls. On two occasions I opened them through the vagina: one of these, a syphilitic patient, is still under treatment, about two pints of pus having been evacuated.

TREATMENT IN MEN.

The first practical bearing of this paper is the cure of Elephantiasis by operation, the mode of performing which *in men* is exhibited in the following Tables:

AMPUTATION OF THE SCROTUM IN ELEPHANTIASIS SCROTI.

The following is the card which I give to my Assistants. The whole operation is here expressed in one of the formula from my little work on surgical operations :

1ST. ASSISTANT OR HOUSE SURGEON

Arranges the Instruments upon a tray, over a folded towel, placed upon a low stool close to the Operator, thus :—

- | | |
|---|-------------------------------|
| 1. Bistourie Caché. | 8. Six Sponges. |
| 2. Double-edged Catlin, guarded with a nodule of wax. | 9. Ligatures. |
| 3. Small Liston's knife. | 10. Chloroform. |
| 4. A long one. | 11. Brandy and Ammonia. |
| 5. A strong-handled Scalpel. | 12. Handkerchief. |
| 6. Six Forceps. | 13. Bandages and Split Cloth. |
| 7. Six Tenacula. | 14. Tow and Lint. |

A Hospital Cot, folded Blanket, Oil Cloth, pans of sand, water.

Sees that the pubes is shaved, administers chloroform, watching its effect. Places patient on the cot.

2ND AND 3RD ASSISTANTS

Separate the patient's legs, place them extended upon stools, on a level with the trunk, taking care that they do not start. When fairly insensible, they drag the patient till the nates project over the edge of the cot. (They sit upon the floor.)

4TH ASSISTANT

Supports the tumour, and moves it as required, standing to right of patient. If large, two support it on a cloth beneath.

5TH AND 6TH ASSISTANTS

Standing at the patient's hips, keep ready sponges (wrung out) for compression.

4TH ASSISTANT

Raises the tumour or reverses it, in order to drain it.

4TH ASSISTANT

Raises the tumor.

5TH ASSISTANT

Thrusts into the incision both thumbs ; using the knuckles of both hands as fulcra, he turns out the bottom of the incision where the testicle is attached, and presents it fairly to the knife.

Lifts up the testicle, his nails well gript under it, and takes it up to the abdomen, holding it there with his left hand, and clapping on a sponge with his right, pressing upon the vessels at the neck of the tumour.

4TH ASSISTANT

Draws the tumour towards the Operator, separating it from the trunk, holding it out tense, like an apron is held out, if small ; and if large, supporting it, hanging over his forearm.

5TH ASSISTANT

Keeps apart the edges of the incision, and clears it with a sponge.

Firmly grasps the penis, his nails well under it ; lifts it up from its attachments, and preserves the urethra from the knife.

6TH ASSISTANT

Thrusts into the incision both thumbs and turns out the testicle with his fingers behind the tumour.

Lifts up the testicle, his nails well gript under it, and takes it up to the abdomen, holding it there with his left hand, and clapping on a sponge with his right, pressing upon the vessels at the neck of the tumour.

ASSISTANTS

Tie vessels, draw out vessels with forceps.

Keep on the sponges firmly pressed, only raising the edges to expose bleeding vessels.

Apply clean sponges and dry cloths.

Wash out the sponges and hand them.

Raise the legs at right angle with trunk.

Give Ammonia.

OPERATOR.

1. Carefully examines the tumour, if he have not already, in the following particulars :—

- 1st. If there be hernia, (best ascertained by percussion, if the tumour be large.)
- 2nd. Whether or not the glans penis be dragged near to the external opening.
- 3rd. If there have been abscesses in the perinæum, dragging down the fascia.
- 4th. The existence or not of hydroceles.
- 5th. The situation of the testicles as to depth.
- 6th. The complete insensibility of the patient.
- 7th. The consistence of the tumour and skin. (It is sometimes hard as brass.)

2. He should ascertain (for the man's life may depend upon it,) that each Assistant is present, and knows his duty ; that they are placed so as to have free action ; that they are expert in tying vessels ; and that all instruments he may want are ready to his hand.

3. Seated on a low chair, between the patient's legs, he orders the tumour to be raised, and well drained ; in this position, he endeavours to feel with the fore-finger of his left hand the reflexion of the prepuce from the penis ; if found, the tumour is depressed, at the same time that the knife, (guarded with wax at the end,) aided with the weight of the descending tumour, is thrust through the point of reflexion till it cuts itself out, and the penis is fairly exposed, up to its root on its dorsum.

4. Severs the frenum and attachments of the under surface of the penis, which is turned up.

5. Places up the integument over the right cord, which is rendered lax for this purpose, cuts it through horizontally, on a level with root of penis, by thrusting the knife under the pinched-up skin.

6. With one hold, firm, deep incision, from top to bottom of the tumour in the course of the cord, lightning his hand if any of it appear, he cleaves through the tumour from top to bottom on the right side as far as the testicle, very likely opening one of the hydrocele sacs, which gushes out half or a pint of fluid, and discloses the testicle at its back part.

7. The testicle and cord being well lifted, the knife is passed rapidly under, dissecting them up towards the ring. If a small hydrocele present, it is taken up unopened.

8. With the point of the knife cuts through the skin over the cord, as in the right testicle.

9. Cleaves the tumour downwards, and gets out the left testicle. If hydrocele be large, cuts into it—and when empty, seizes the testicle with adhering cord at back of the sac—and dissects both out of the mass, carrying them upwards. If a small bony sac present, as often happens—it is best dealt with afterwards.

10. Seeing that the penis and testicle are well out of the way, with a long catlin he severs all the remaining attachments of the tumour close to the perineal fascia (as the base is presented by Assistant in one straight line.)

OPERATOR.

11. Draws out vessels.

12. Examines the testicles, castrates if diseased, cuts away any superabundance of hydrocele sac, clears away any diseased infiltrated blubber that may remain.

13. If the man have fainted, applies ammonia or brandy, or mustard plasters, sprinkling with cold water, giving air, clearing the room if crowded.

DRESSING APPARATUS.

1ST ASSISTANT

Having secured the T bandage round the abdomen, brings the split tail of it between the legs, applies strips of oiled lint over the wound, and over that some teased tow, so as to support the testicles and prevent them slipping down from the fingers of the Operator ; over all comes the tail of the T bandage, the tails crossing under the penis, one being carried to one side, the other to the other, and secured round the horizontal band. Water dressing.

OPERATOR

14. Fixes each testicle opposite root of the penis at the points where he intends they should adhere, until the bandage is brought up by which they are secured.

15. Orders the patient to be watched, lest bleeding occur upon reaction. Leaves the wound till the discharge renders dressing necessary.

The operation practised as here directed, occupies from two and a half minutes, the quickest of my operations to five minutes, saving testicles and penis. When we dare not prolong it to five minutes, as in tumour of 90 or 100 lbs. weight, it is done in a few seconds, saving the penis only. One of the graduates of our College BABOO PERMANAND SETH has operated upon patients at my hospital in three and a half minutes. If the tumour weigh fifty pounds weight, the man will surely faint during the operation. If this be prolonged the man will die as in the case of HAO-LOO, operated upon by Mr. SKEL.

AMPUTATION OF THE SCROTUM AND TESTES IN ELEPHANTIASIS GENITALIS.

ASSISTANTS.

Arrange instruments upon a tray over a folded towel, place them upon a low stool close to the operator, as follows, having seen the pulley and cloth all right.*

- | | |
|--|--|
| 1. Long bistourie-caché, (blade 2 feet.) | 5. Six forceps. |
| 2. Long Liston's knife, (wax at the end.) | 6. Six turacula armed. |
| 3. Strong, short, double edge catlin—(blade 6 inches.) | 7. Six sponges, ligatures waxed. |
| 4. Strong handled scalpels. | 8. Chloroform and handkerchief, bandages, split cloth, tow and lint. |

Sponges, water—pans of sand—ammonia.
Brandy—sinapisms.

Place the patient, pubes shaved, upon a cot, on his back—head slightly raised—legs on stools, level with the trunk—and separated for operator to act between.

FIRST ASSISTANT—Leaning over the head, mesmerizes or chloroforms, as the case may be.

SECOND ASSISTANT—In charge of the pulley, raises the tumour, reverses and drains it, and before allowing it to descend, awaits the protrusion of the bistourie-caché, and aids its exit by the weight of the descent of the tumour.

THIRD AND FOURTH ASSISTANTS—Kneeling at the right and left hips of the patient, secure with sponges the bleeding vessels.

FIFTH ASSISTANT—Seizes the penis—turning it up.

SECOND ASSISTANT—In charge of the pulley, draws the tumour firmly forwards so as to render the root of it tense for division, like an apron is drawn out to receive any thing in.

SIXTH ASSISTANT—Standing at the patient's right hip, with one hand keeps the knees down, with the other secures the bleeding surface.

SEVENTH ASSISTANT—Standing at the patient's left hip, in like manner secures the bleeding surface on the left side.

EIGHTH ASSISTANT—Aids the operator to secure the bleeding vessels, as they become successively exposed, by lifting up the edges of the sponges.

* Secure into the ceiling a hook—to which a pulley and cord is attached, supporting a strong square piece of sail cloth, with a strong cord round the edges, having loops at the four corners through which the pulley rope passes to secure the tumour, and yet allow it to be flattened out if required.

OPERATOR.

1. Seated in front of the patient, so as to allow the light to fall upon the perinæum, introduces into the sheath leading to the penis a long bistourie-caché (blade 18 inches long,) or a long catlin guarded with wax. He forces through the point at the reflexion of the sheath from the penis if he can. If too short in the blade, or the mass too great to allow the point of the blade to pass through, the prominence will suffice to guide him for the next step.

2. Depressing with his left hand the instrument in the sheath, he cuts with his right a semi-circular sweep, beginning well to the right of the base of the tumour entering it deep, coming over to the front of the pubis, cutting on to the instrument in the sheath, which thus saves the penis, and finishing well down to the left side of the neck of the tumour.

3. The weight of the tumour now opens the chasm, the penis is seen, a bold stroke up towards the pubis clears the dorsum, and the advantage of the cross incision, is seen in the blood running off freely to the right and left of the cross cut, allowing the penis to be seized by the assistant.

4. The knife passes under the penis—well clear of it and frees it to its root—any redundant matter cleared away afterwards.

5. He now pushes down the fingers of his left hand, so as to clear and protect the perinæum, the long catlin follows, sliding over the back of his hand, piercing the neck of the tumour and coming out anterior to the anus.

6. He now turns the edge of the catlin to the right and cuts every thing through—while the root of the tumour is rendered tense for that purpose.

7. He turns the edge now to the left and severs all the remainder of the root of the tumour—which is swung out of the way.

8. Whilst the man has fainted, clears away any remaining portions of tumour, especially from the penis, and secures as rapidly as possible the bleeding vessels.

